GENERATION, TRANSMISSION AND APPLICATION OF THE POWER SERVICES

MID-YEAR BUYERS' GUIDE NUMBER

Power

Mid-June
1951 50¢

A McGRAW-HILL PUBLICATION

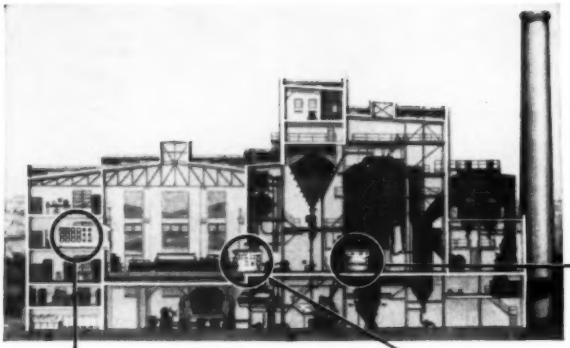
combined with Operating ENGINEER

Power-field equipment and supply
DIRECTORY p 35

Former manufacturers
INDEX p 133

Reviews of new plant
EQUIPMENT p 143

Descriptions of bulletins and
CATALOGS p 177



FOR BOILER BOARDS

Metermax Combustion Control
Micromax Superheat Control
Micromax Recorders for:
- **Per Cent CO_2**
- **Steam Purity**
- **Smoke Density**
- **Temperatures of steam, air preheater, economizer, flue gas, feedwater and other heat-balance points**

FOR ELECTRICAL BOARDS

Load-Frequency Control
Telemeters
Micromax and Speedomax Recorders for:
- **Frequency**
- **Voltage (A-C and D-C)**
- **Current (A-C and D-C)**
- **Power Factor**
- **Kilowatts**
- **Reactive Kva**
- **Temperature of bearings, rotors, stators, transformers, cables, etc.**

FOR TURBINE BOARDS

Micromax Conductivity Recorders for purity of condensate, etc.
Micromax and Speedomax Recorders and Indicators for temperature of condensate, cooling water, bearings, hydrogen cooler, etc.
Micromax pH Recorders and Controllers for feedwater treatment
Centrimax Flowmeter

Plant Efficiency--from Btu's to Megawatts--is Guarded by Dependable L&N Instruments

A KEY factor in obtaining accurate, high-availability performance of instruments and controls is the comprehensive line of L&N equipment for boiler, turbine and electrical control boards. Here are typical facts behind the widespread acceptance of these equipments in hundreds of plants:

Boiler Boards: Metermax Combustion Control pioneered the use of electric drive mechanisms in a unique electro-pneumatic control system . . . The Micromax CO_2 Recorder made automatic analysis of flue gas industrially practical . . . For temperature measurements, Micromax and Speedomax instruments and their primary elements are the result of over 38 years' experience.

Turbine Boards: Virtually every sizable steam plant relies on Micromax Conductivity Recorders for measuring condensate purity . . . The Centrimax Flowmeter is, to the best of our knowledge, the most accurate industrial flowmeter made today . . . Recording and control of pH, vital to feedwater treatment, was first made practical by the development of L&N equipment.

Electrical Boards: L&N Load Frequency Control and Telemeters today are operating in over 90 per cent of the interconnected systems in this country—regulating some 40 million kilowatts of generating capacity.

For details of how these and other L&N instruments can bring new dependability to your plant, contact our nearest office or write us at **4987** Stenton Avenue, Philadelphia 44, Pa.

MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACES

LEEDS & NORTHRUP CO.

J.L. Ad. N-460(6)

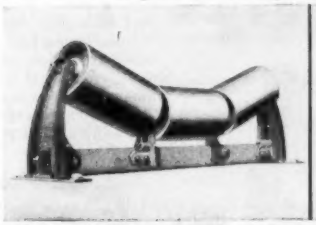
LINK-BELT engineering experience...

Plus

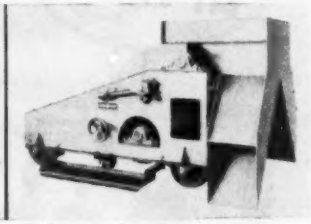
LINK-BELT quality components...

...add up to your best buy in BELT CONVEYORS

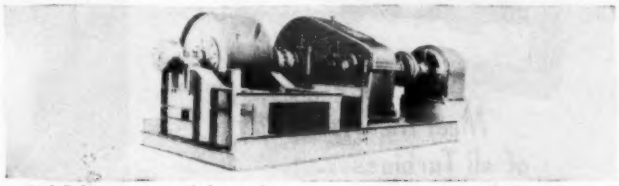
Link-Belt 48-inch-wide belt conveyor system handles 770 tons of coal per hour from ship unloading towers to dock storage.



Series 100 Idlers are superior quality, with high-grade roller bearings and effective grease-in-dirt-out seal.



Link-Belt makes all types of trippers for discharging materials and distributing them along the conveyor belt.



Link-Belt power transmission equipment meets every conveyor need. Shown here: Link-Belt 300 H.P. fluid coupling drive and D-250 herringbone gear reducer.

YES, you get *both*—practical engineering and quality components—when you call on Link-Belt for belt conveyors! Thousands agree Link-Belt makes the finest belt conveyors on the market today.

Engineering experience? Our conveyor specialists draw on an accumulation of years of materials handling and power transmission experience. They will help you and your consultants get top performance from a modern conveying system.

Quality components? We design every item on a belt conveyor system and build it to the highest standards. We make all types and sizes of idlers, take-ups, pulleys, trippers, bearings, drives and supports. You get the *right* equipment for your exact requirements when you rely on Link-Belt.

See for yourself! Let us show you some of the modern conveying systems we have installed. See the results of practical Link-Belt engineering experience—simplicity of design, the finest components, and most important, *top performance.*

Remember, there's a Link-Belt conveying specialist in the branch office near you. Call him for complete engineering information.

LINK-BELT

BELT CONVEYOR EQUIPMENT 12,301-C

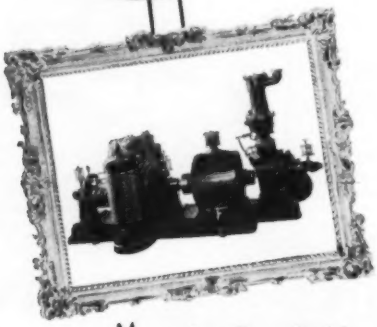
LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices in principal cities.

Keeping 192,000 H.P. well oiled and cooled...

De Laval products at work!

120 of these De Laval combined IMO rotary and centrifugal pump sets handle all the lube oil and jacket cooling water for 120-1600 hp radial gas engines in one of America's largest aluminum ore reduction plants.

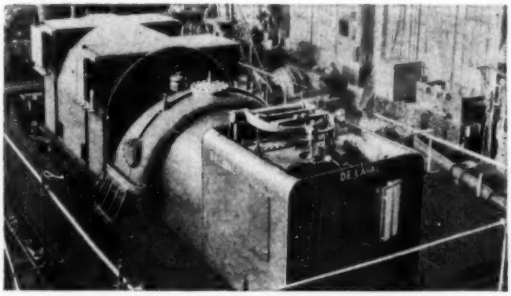
The IMO is a versatile rotary pump that has dozens of applications around a power plant. You'll find them in high and low pressure fuel oil burner sets, pumping fuel oil to burners, unloading and transferring fuel and diesel oil, handling oil for lighting off and stand by service, providing pressure lubrication on pumps and turbines . . . We could fill the page with different applications but would rather send you a copy of our *Bulletin LG*. It shows the complete line of IMO's for capacities to 1000 gpm at pressures to 500 psi and 150 gpm at pressures to 1500 psi. *Write for your copy today.*



Meet the Grandaddy of all Turbines...

The first turbine-driven generating set to produce current on a commercial scale in the United States was this De Laval unit installed at the Chicago World's Fair in 1893. Grandad was a fast man in his day too . . . he delivered 10 hp at 24,000 rpm. Just four years later, four De Laval 100 hp turbine generators operating at 2840 psi, 750° F and two 50 hp turbines operating at 1420 psi supplied all the power for the Stockholm Exhibition. That is high pressure, high temperature operation even by todays' standards!

Next time you're in our neighborhood stop in and see Grandad. He is on display in our reception room. Then let us take you through our shops . . . there you'll see how the finest turbines in the country are built.



On Test – 11,500 KW

This big De Laval turbine generator and another just like it will soon go into service supplying power for one of our key Naval Bases. De Laval Turbine-Generators, *(we build them from 25 to 11,500 KW)* are at work in industrial, central station and municipal power plants all over the country. *Ask for a copy of our new Bulletin 4200.* Let it convince you that you should call in a De Laval engineer on your next turbine-generator job.

DE LAVAL STEAM TURBINE CO., TRENTON 2, N. J.

TURBINES • HELICAL GEARS • CENTRIFUGAL BLOWERS AND COMPRESSORS
CENTRIFUGAL PUMPS • WORM GEAR SPEED REDUCERS • IMO OIL PUMPS

50th DE LAVAL Anniversary

Power

combined with Operating Engineer

MID-JUNE, 1951 VOLUME 95 NUMBER 6BG

MID-YEAR BUYERS' GUIDE

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(Member ABC and ABP)

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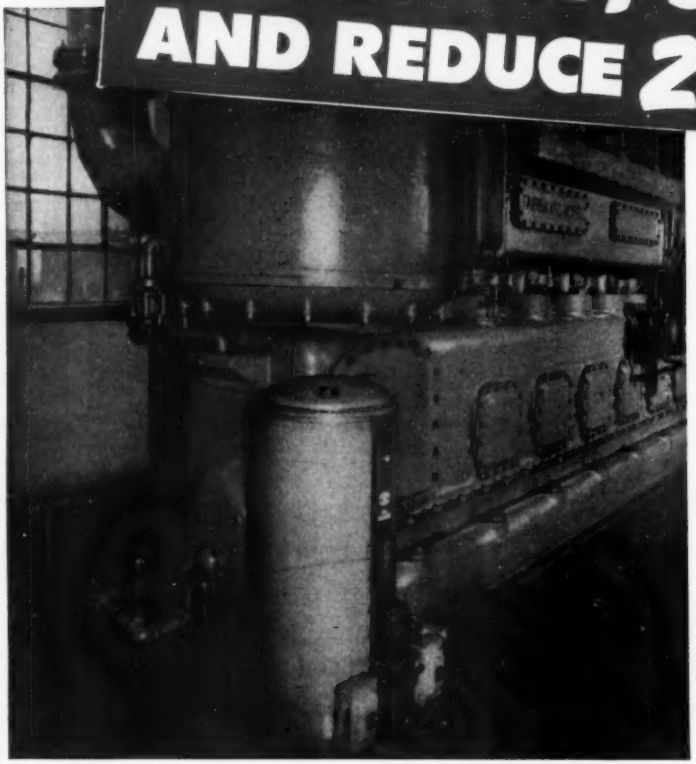
TAKE 1 STEP AND REDUCE 2 COSTS



Down go fuel consumption and upkeep expense when you lubricate your Diesels with TEXACO URSA OILS

Take that cost-saving step today. Lubricate your Diesels with *Texaco Ursa Oils* and note how much less fuel you use. Note, at the next scheduled overhaul, how clean your engines are, how free of harmful carbon and sludge deposits. *Texaco Ursa Oils* keep your engines really clean.

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More stationary Diesel h.p. in the U. S. is lubricated with Texaco Ursa Oils than with any other brand.

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Power

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. . . lines and by-lines

Why does POWER publish this Buyers' Guide issue? Back in 1938 it became clear that there existed a definite need in our field for a directory of power-equipment manufacturers, so that readers could locate products and services.

Although POWER had issued Mid December issues prior to 1938, publishing news of ASME meetings, plant surveys and the like, there was never an issue completely devoted to material that would lend itself to a directory.

First and only guide

Accordingly, in the Mid-December, 1939 issue POWER began the publication of what we think was the first and only guide to power-field products and manufacturers. In the same issue we included reviews of new equipment items that had been published during the previous twelve months, similar reviews of new bulletins and catalogs, and made it possible for readers to order more data and bulletins.

Readers liked it

Surveys among readers showed (and still show) that they were in favor of the move. Readers said they not only read it but kept and used it for reference the year around. Also, many subscribers wrote us comments and suggestions, and asked questions.

One of the questions we heard most was "Where can I get parts for my older equipment?" With the Index to Former Manufacturers we hoped to answer these questions. Engineers can look now at the nameplate on their equipment, then refer to the Index to see if the company has been purchased or absorbed by another, whether the equipment is still being made, and whether or not spare parts are available.

In the space allotted it would be practically impossible to list *all* the companies purchased or absorbed. We try to limit the listing to equipment makers (as against supplies) to make the Index as useful as possible.

Help for the busy Fall season

The directory was shifted to the middle of the year (Mid-June) in 1948, to fill the need for this directory in advance of the busy fall season. Readers still tell us they approve of the mid-year publication date, and of the issue's continuing usefulness and long life.

Here's the lineup

As in most past years, the directory of manufacturers comes first in this issue. It starts on page 35. The Index to Former Manufacturers starts on page 133. Next are the reviews of new equipment; selected items, some condensed, from regular issue of POWER, July, 1950, through June, 1951. Start page 143. New Bulletins and catalog reviews from the same period begin on page 177.

Don't miss, either, the "POWER Service Guide," in which are listed companies in the design and contracting field, companies that specialize in repair services, schools, insurance companies and similar companies. These are on page 132.

On page 175 you can order more information by filling out the numbers of the equipment items you are interested in. Doing the same on page 189 will bring you copies of the catalogs or bulletins you want.

More than 10,000 requests

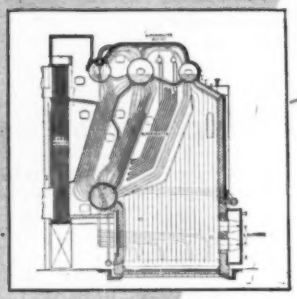
Be sure to fill out the cards completely when ordering information or catalogs. We received over 10,000 requests from the 1950 edition of the Guide; you can see that we'll have trouble handling your requests if the cards aren't filled in completely.

This is your directory

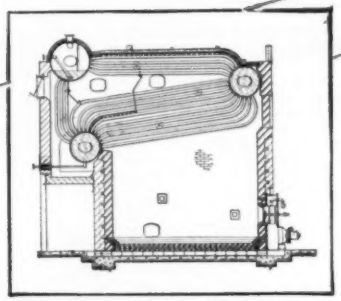
So, here is your 1951 Buyers' Guide. You'll want, we feel, to keep this on your desk all year, using it as another tool to assist you in your work. We'd like your comments, too, if the guide is and has been useful.

LOW-COST STEAM

is a "family" affair at B&W

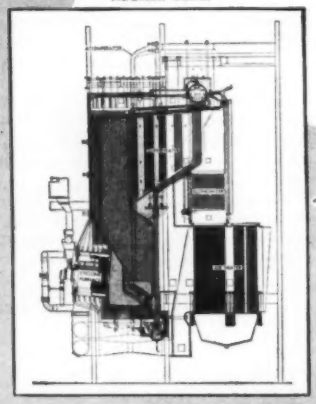


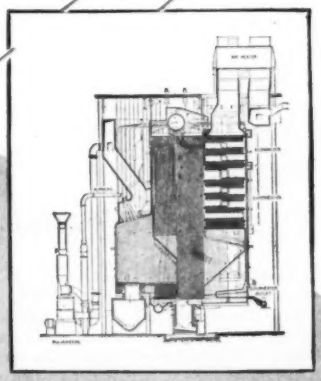
Stirling 4-drum Boiler.



Type H Stirling Low-Head Boiler.

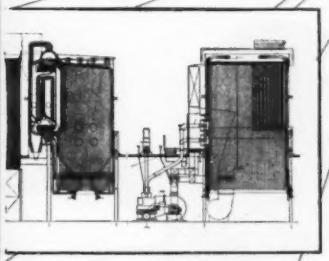
Radiant Boiler



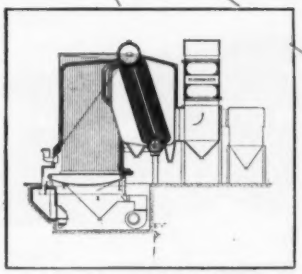


Open Pass Boiler.

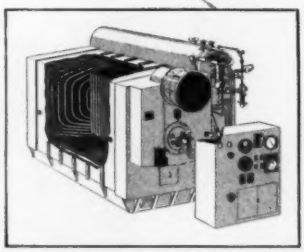
BABCOCK & WILCOX



Integral-Furnace Boiler, Type FH.

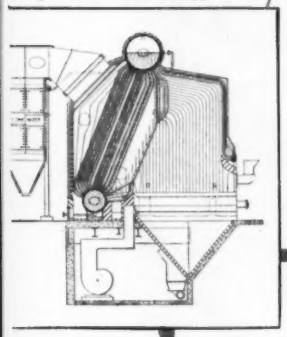


Integral-Furnace Boiler, Type FL.

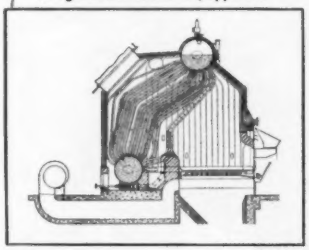


Integral-Furnace Boiler, Type FM.
(SHOP-ASSEMBLED)

Integral-Furnace Boiler, Type FJ.



Integral-Furnace Boiler, Type FF.



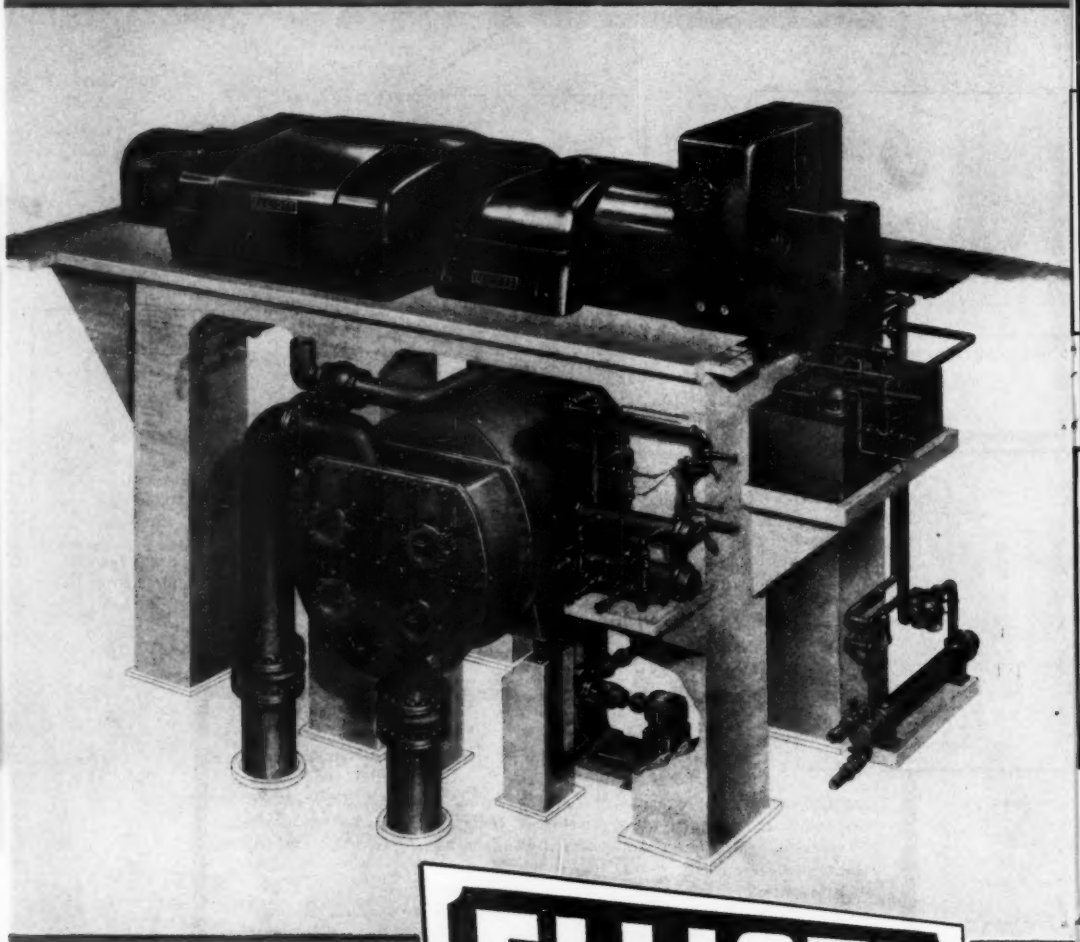
In the development of boiler designs, B&W's pioneering innovations during the last 70 years parallel and reflect an increasingly wide variety of user-requirements. Today, B&W offers an integrated "family" of service-tested boiler designs from which it is possible to select a steam-generating unit to satisfy virtually any requirements.

Shown here, for example, are current versions of some popular B&W boiler designs. Units of these types have been installed spanning a range of steam capacity from 2,800 to 1,370,000 lb. per hr.; final steam temperatures to 1050 F.; and boiler design pressures to 2650 psi.

In each of these types, standardization has been carried forward to the furthest possible degree commensurate with the necessarily diverse requirements of central station, industrial, and non-industrial operating practice. B&W Sales Engineering, established upon this broad base of design categories, is able to bring the most considerate and unbiased attention to your particular steam-generating problem—an approach essential to realizing the advantages inherent in whatever type of boiler is best suited to your operation. The Babcock & Wilcox Company, 85 Liberty Street, New York 6, N. Y.

G-549T

Driving ahead



IN THE ABOVE INSTALLATION:
Turbine-Generator • Surface Condenser • Steam Jet Ejector • Electric Motors • Oil Strainer

ELLIOTT COMPANY

for fifty years!

HALF CENTURY OF POWER PROGRESS

1901 — 1951

It's a long way from the manufacture solely of tube cleaners fifty years ago, to the successful establishment today of the broad line of major equipment listed at the right. Each of these products is a milestone in Elliott Company history. Each is characterized by sound engineering, so that whether it be a turbine-generator or a twin strainer—a motor or a mechanical drive turbine—a condenser, or a tube cleaner for that condenser, the purchaser knows that the product will have all the latest in design elements to insure long life, profitable operation and minimum maintenance.

"You're a step ahead with Elliott" means what it says, as many power engineers and executives know.

- Turbine Generators
- Mechanical Drive Turbines
- Motors and Generators
- Generators for Diesels
- Turbochargers for Diesels
- Centrifugal Blowers
- Deaerating Heaters
- Condensers
- Steam Jet Ejectors
- Strainers
- Tube Cleaners

HEADQUARTERS AND GENERAL OFFICES

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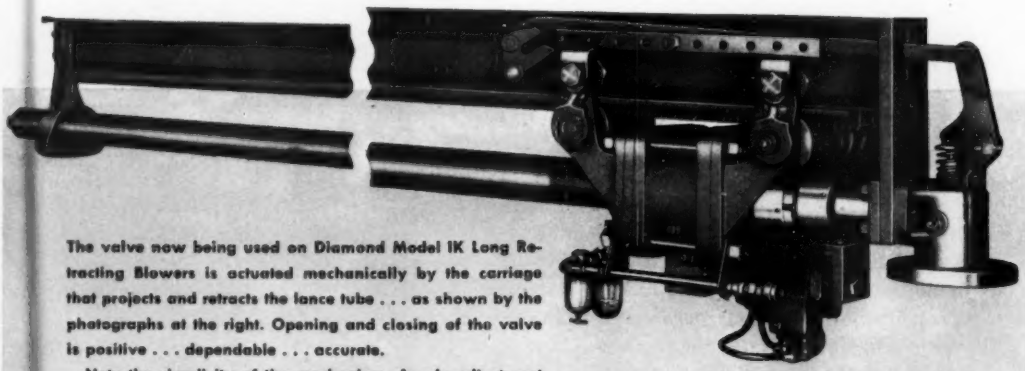
Approved service shops and distributors strategically located throughout the United States.

Mechanically Operated Valve

IMPROVES PERFORMANCE

OF DIAMOND MODEL IK

LONG RETRACTING SOOT BLOWER



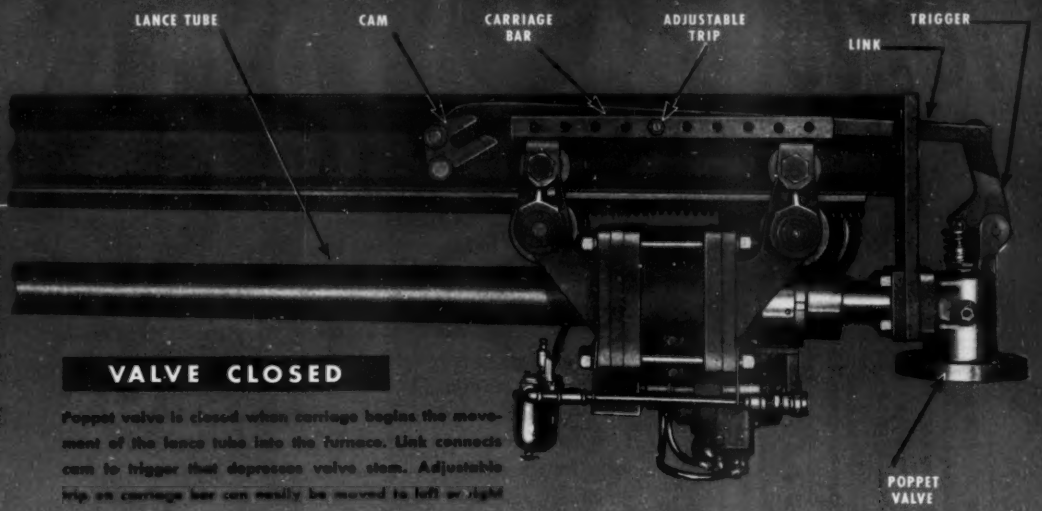
The valve now being used on Diamond Model IK Long Retracting Blowers is actuated mechanically by the carriage that projects and retracts the lance tube . . . as shown by the photographs at the right. Opening and closing of the valve is positive . . . dependable . . . accurate.

Note the simplicity of the mechanism. Ample adjustment is provided to permit valve operation to be set at the proper point for each individual blower. This valve has very low pressure drop and is suitable for either steam or air blowing; it has the exclusive Diamond adjustable pressure control unit for selection of blowing pressure to meet individual blower needs. This mechanically operated valve has been in field operation on many IK Blowers in severe central station service for the past two years. Results have been so satisfactory that it is now standard on IK Blowers.

Air motor operated unit shown; also available electric motor operated.

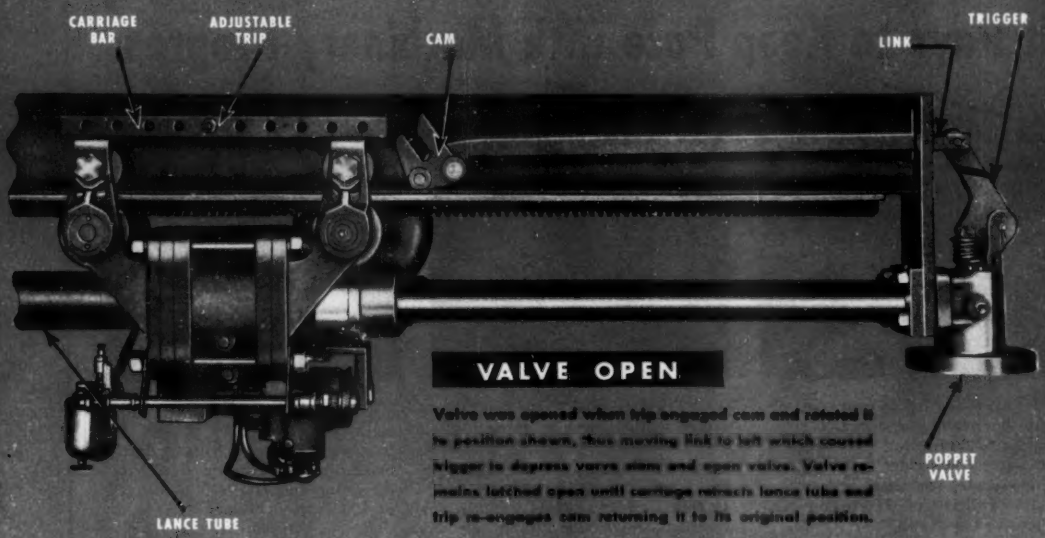
DIAMOND POWER SPECIALTY CORP.
LANCASTER, OHIO
Diamond Specialty Limited • Windsor, Ontario

4657



VALVE CLOSED

Poppet valve is closed when carriage begins the movement of the lance tube into the furnace. Link connects cam to trigger that depresses valve stem. Adjustable trip on carriage bar can easily be moved to left or right to open valve earlier or later in travel of lance tube.



VALVE OPEN

Valve was opened when trip engaged cam and rotated it to position shown, thus moving link to left which caused trigger to depress valve stem and open valve. Valve remains latched open until carriage retracts lance tube and trip re-engages cam returning it to its original position.

ADVANTAGES

Positive valve action

Simple and rugged mechanical linkage

Adjustable valve operating position

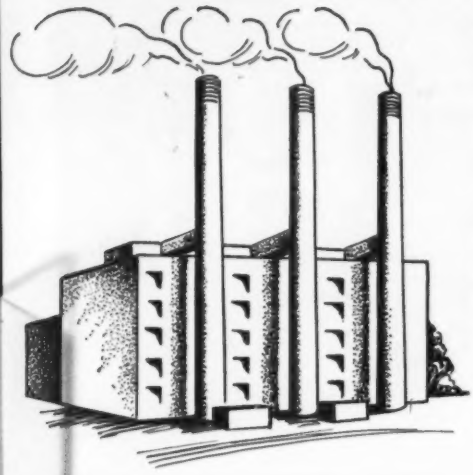
No critical adjustment for tight valve seating

Completely adaptable to steam and air blowing, interchangeably

Low pressure drop

Adjustable pressure control on each individual blower

It Takes POWER



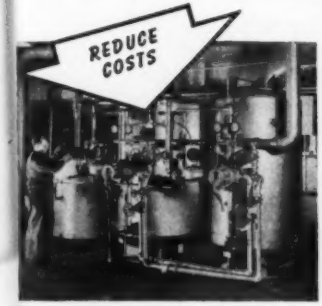
THE JONESES, USA, are a fast moving set. They're spending more than ever before for defense and in addition they're spending for home freezers, refrigerators, and television sets. It all adds up to bigger power loads to come.

The electric utility industry is doing a tremendous job in keeping up with the Joneses. Utilities all over the country have taken the initiative and are expanding or planning to expand. Many are getting help from Allis-Chalmers.

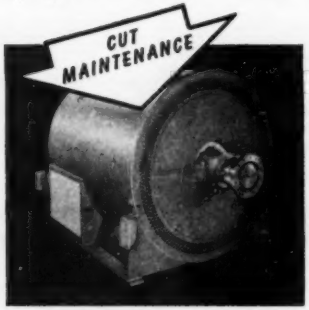
While plans are still in the formative stage, it might pay you too to take advantage of the wealth of experience of your Allis-Chalmers representative. He not only has a wide line of equipment for the electric power industry, but he has a broad background of practical experience that could prove helpful to you. Call your nearby Allis-Chalmers District Office, or write Allis-Chalmers, Milwaukee 1, Wisconsin.

A-3368

It Pays to Keep Pace with Machinery Progress



PREVENT SCALE in your coolant cycle; cut maintenance costs. This modern 57,000 gallon capacity zeolite water conditioner helps guard against scale, foaming, and carry-over, as well as against corrosion and expensive blowdown.



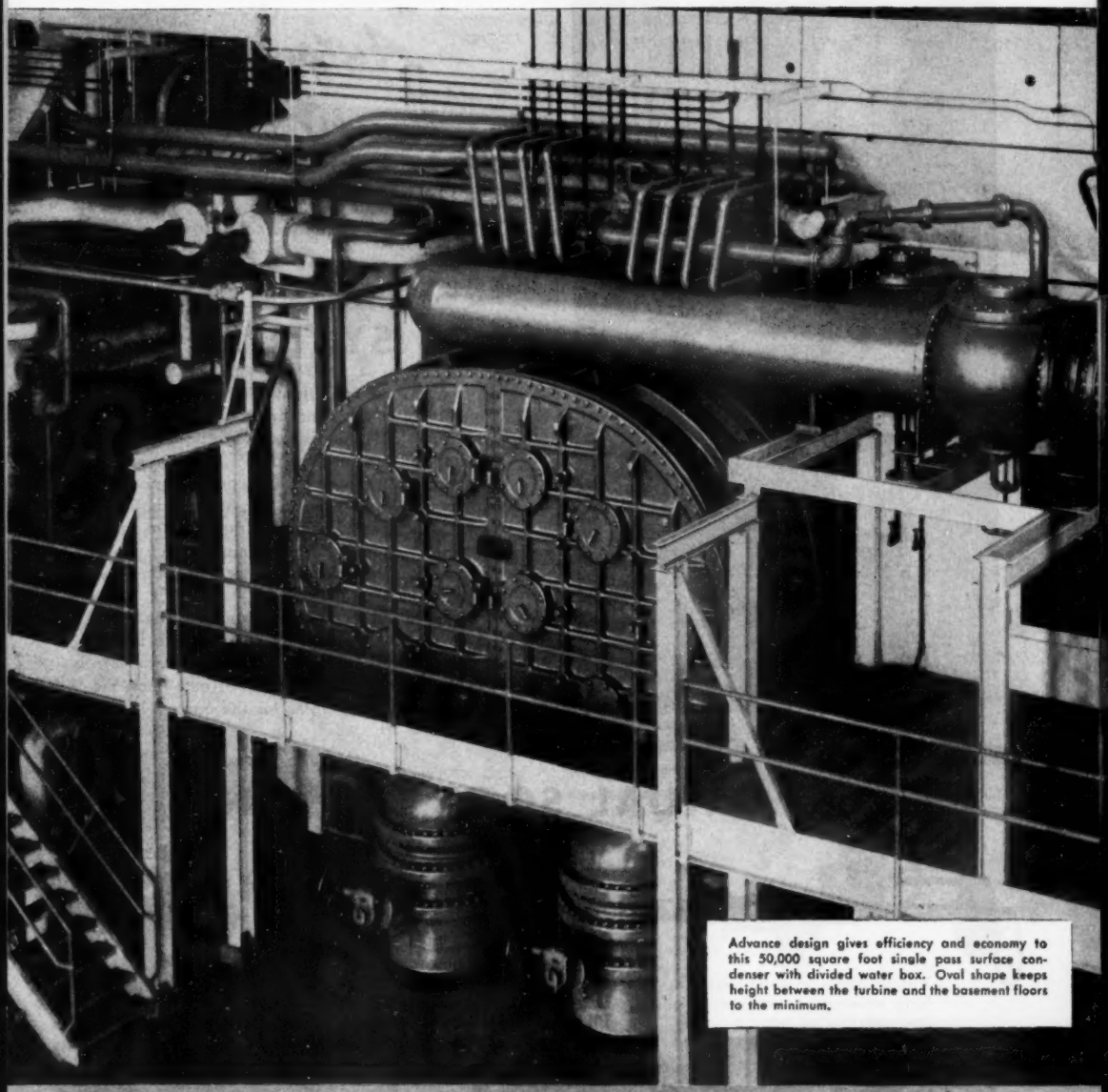
TUBE-TYPE totally-enclosed fan-cooled motor shown above rarely if ever needs cleaning. Cooling air passages are straight and unrestricted—there is no place for dirt or moisture to collect. Ideal design for dirty locations, inside or out.

TRANSFORMERS maintain full strength, last for years without deterioration because Allis-Chalmers modern corona-free design completely eliminates effects of corona. 20,000 kva transformer above is being surge-tested in laboratory.

Equipment for Power: Water Conditioning equipment, chemicals and service...Steam and Hydraulic Turbines...Generators...Condensers . . . Steam Jet Air Ejectors . . . Power Plant Pumps and Motors . . . Transformers . . . Circuit Breakers . . . Switchboards and Control . . . Switchgear . . . Unit Substations . . . Utilization equipment.

ALLIS-

To Keep Up With The Joneses!

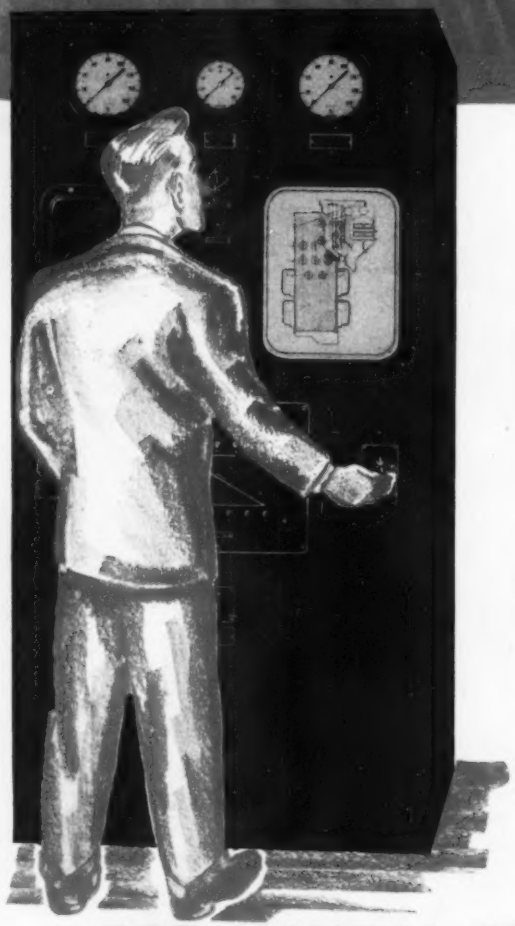


Advance design gives efficiency and economy to this 50,000 square foot single pass surface condenser with divided water box. Oval shape keeps height between the turbine and the basement floors to the minimum.

CHALMERS

A-C ALLIS-CHALMERS

VULCAN



Automatic OR *Automatic Sequential*

SOOT BLOWING SYSTEMS

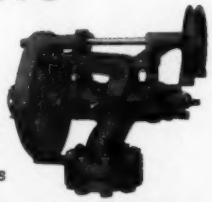
More and more important plants are turning to Vulcan Automatics for better soot blowing at lower cost. Effective boiler cleaning is assured by improved, tested designs. Time is saved. Operators blow soot by merely pushing a button. Blowing medium—steam or air, or both—is saved. Cleaning is effective from start to finish of cycle. Maintenance is minimized. Each working part is easily accessible for inspection and quick replacement.

With Vulcan Automatic-Sequentials, the entire boiler can be cleaned by pushing one button at the central control panel. The operator can see at a glance that each blower cuts in on the right cycle and operates for the correct length of time.

FOR MANUAL SOOT BLOWING

Vulcan gun and wall blowers apply high striking power in most effective distribution pattern.

Vulcan gun blowers, wall blowers and rotary units for manual operation start cleaning instantly when the cycle is started, shut off instantly when the cycle is completed. Thorough cleaning assured by matching jet steam or air to the job. Easily maintained by boiler room personnel. Rugged. Dependable.

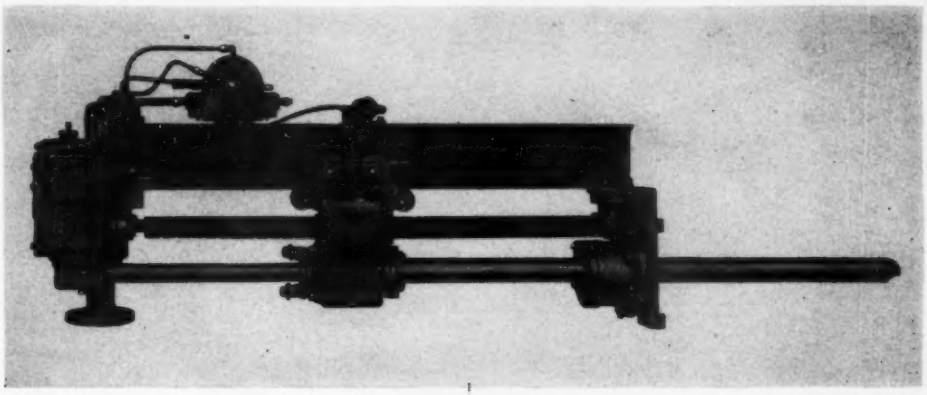


Vulcan P-3 Rotaries start with an easy pull—no yank!

VULCAN *Automatic*

Cleans BOILERS

FASTER, BETTER *and at* LOWER COST

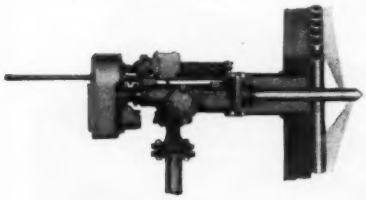


VULCAN T-3 LONG RETRACTABLES

Designed for travels up to 25 feet, Vulcan Long Retractables are ideal for the hard-to-clean surfaces. Lance (shown partly extended) retracts for protection against high furnace temperatures, cutting maintenance. Blows with steam or air, or both. Driven by air or electric motor. Can be installed at any angle, indoors or outdoors. Operated by push button at unit or at the panel.

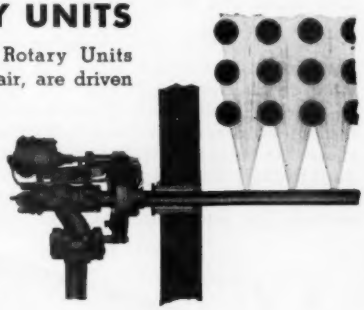
GUN- OR WALL-TYPE

VULcomatic gun- and wall-type blowers blast hard-to-clean deposits from boiler, superheater and water wall surfaces. Air or electric motor drive. Blow with air or steam. Operate by push button at unit or at panel.



ROTARY UNITS

VULcomatic Rotary Units use steam or air, are driven by air or by electric motor. Trigger action valve starts cleaning instantly at full pressure. No air or steam lost.



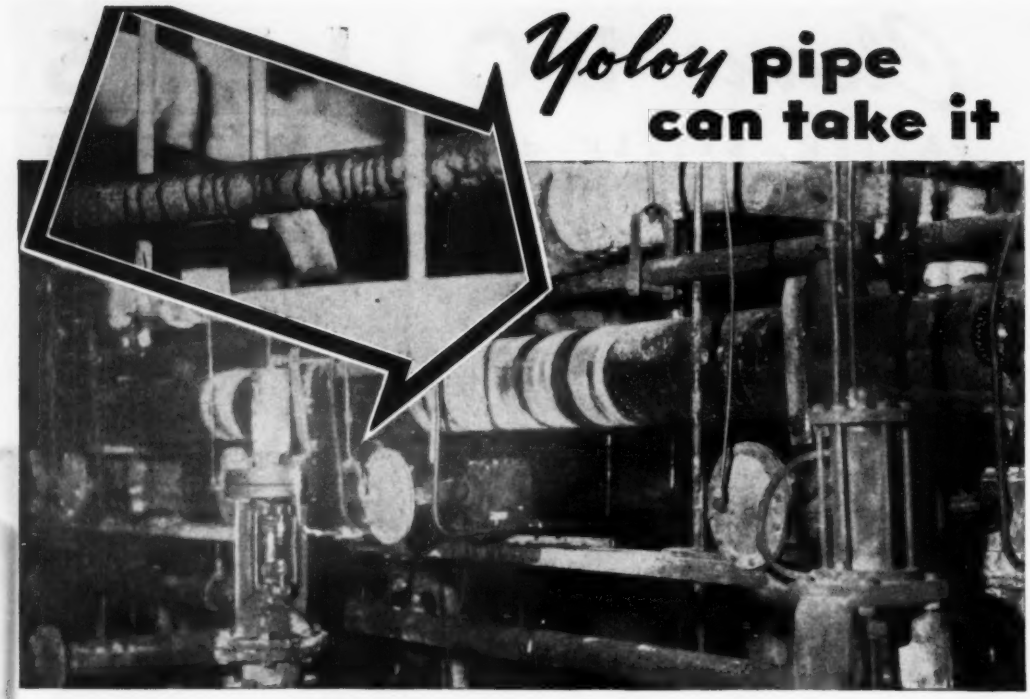
VULCAN SOOT BLOWER DIVISION

Continental Foundry & Machine Company

DU BOIS, PENNSYLVANIA

Soot BLOWERS

Yoloy pipe can take it



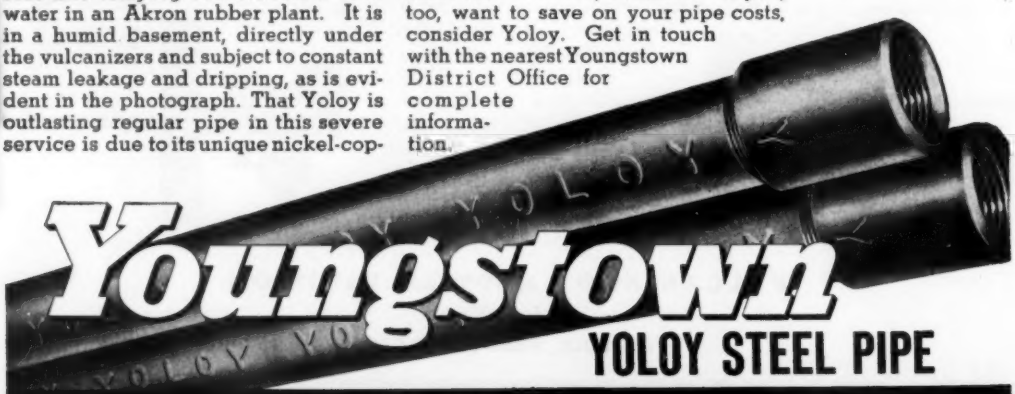
In the arrow inset above, you see a piece of 1½" Yoloy Continuous Weld Pipe. Subject to continual corrosion, it is still in use after nearly 4 years. Regular pipe used here previously had failed and been replaced at least once a year.

This Yoloy pipe is in a booster pressure line carrying 500 P.S.I. raw cold water in an Akron rubber plant. It is in a humid basement, directly under the vulcanizers and subject to constant steam leakage and dripping, as is evident in the photograph. That Yoloy is outlasting regular pipe in this severe service is due to its unique nickel-copper content or low-alloy composition.

In this installation Yoloy pipe has saved the manufacturer 50% of his pipe cost, 75% of his installation labor cost and has avoided three costly shutdowns for pipe repairs.

Yoloy standard weight black pipe is carried in stock for prompt delivery in sizes from ¾" to 3", inclusive. If you, too, want to save on your pipe costs, consider Yoloy. Get in touch with the nearest Youngstown District Office for complete information.

THE YOUNGSTOWN SHEET & TUBE CO. 1900 YOUNGSTOWN 1950 50 YEARS OF SERVICE



Youngstown
YOLOY STEEL PIPE

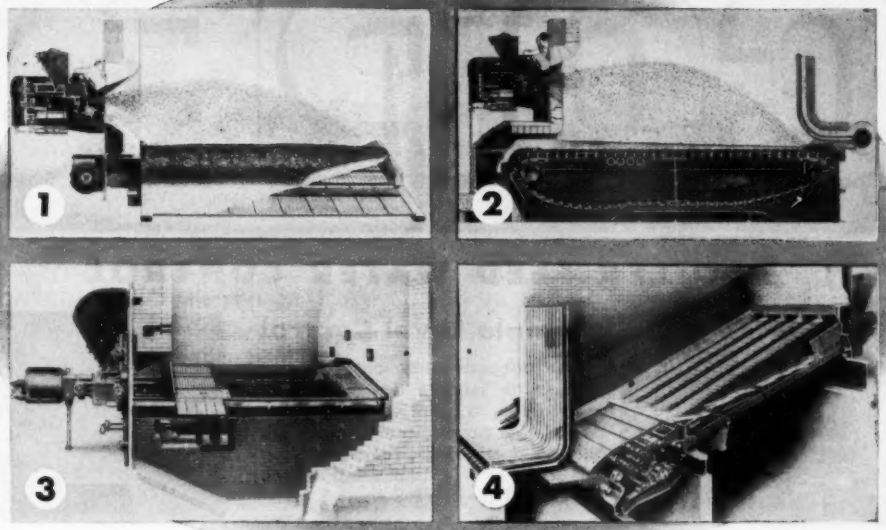
THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices — Youngstown 1, Ohio

Export Office - 500 Fifth Avenue, New York

PIPE AND TUBULAR PRODUCTS · CONDUIT · BARS · RODS · COLD FINISHED CARBON AND ALLOY BARS · SHEETS · PLATES · WIRE · ELECTROLYTIC TIN PLATE · COKE TIN PLATE · RAILROAD TRACK SPIKES



High Efficiency... Ease of Operation

in the Stoker Type That Meets Your Need

1. *Centrafire with Link-Grate*

The Centrafire with Link-Grate is a unique spreader-type stoker for medium capacities to upward of 50,000 pounds of steam per hour. Fuel feed is continuous. Link-Grates move the burning fuel toward the side walls. Refuse is discharged without reducing load or losing steam pressure.

2. *Centrafire with Traveling Grate*

A spreader-type stoker with traveling grate for the larger Central Station and industrial plant. Maximum capacity upward of 350,000 pounds of steam per hour. Same fuel feeding and distributing mechanism as Centrafire with Link-Grate. Forward-moving traveling grate for continuous discharge of ash.

3. *Link-Grate Single-Retort Stoker*

The Link-Grate Single-Retort Underfeed Stoker is an economical means of burning many coals for the small installation. Link-Grate motion maintains an active, porous fuel bed for efficient coal burning with a minimum of attention.

4. *Link-Grate Multiple-Retort Stoker*

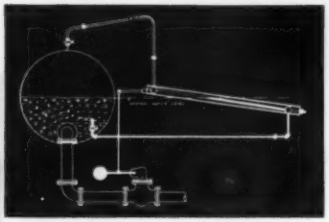
A clean stack and outstanding efficiency are characteristic of the Link-Grate Multiple-Retort Underfeed Stoker for the larger installation where fuel is suited to underfeed type firing. Link-Grate motion and continuous ash discharge permit heavy, continuous loads.

Call your nearby Westinghouse office or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa., for complete information. J-50523

YOU CAN BE SURE... IF IT'S
Westinghouse
STOKERS

COPES

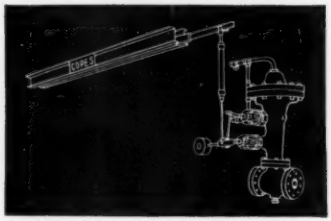
BOILER FEED WATER CONTROL



Simple-level-control COPES Type BI Regulator. Thousands in use.

Simple Level Control

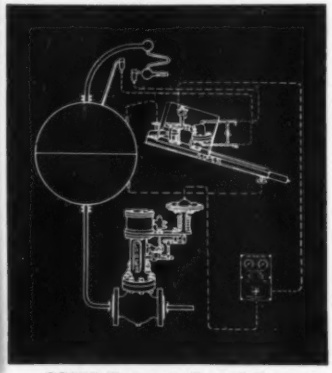
The original continuous-feed regulator in modern design, feeding according to boiler water level. For moderate pressures and ratings; for stable loads. Fully-automatic Type BI (Leaflet P-1-P). For small boilers, Type OT (Leaflet P-2-P).



COPES Flowmatic Type D-O. Most widely used two-element control.

COPES Flowmatic Control

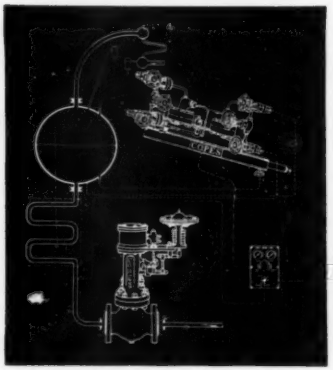
Feeds according to water level and steam flow. Independent of all other instruments and controls. For fast-steaming boilers. Direct-operated (Bulletin 429-P). Relay-operated or air-operated for flexible installation (Bulletin 441-P).



COPES Flowmatic Type A-O permits installation to meet any piping layout or operating preference.

Balanced Flow Control

Three control influences; water level, steam flow, water flow. Suited for highest pressures and ratings, for severest load conditions. Stays on fully-automatic when other boiler instruments and controls must be out of service. Leaflet P-25-P.



Schematic drawing of three-influence COPES Balanced Flow Control.

Control Through Hydraulic Couplings

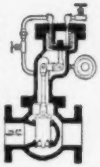
Either the two-element COPES Flowmatic or the three-influence Balanced Flow may be applied directly to hydraulic couplings of boiler feed pumps, eliminating the feed control valve. Complete engineering data on request. Please outline fully your operating conditions and desires.

COPES

BOILER FEED

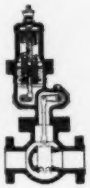
Directory

DIFFERENTIAL CONTROL



COPES engineers pioneered differential pressure control. Type SS-2 illustrated (Leaflet P-P) is direct-operated. Other types, relay- or master operated, are built for all operating requirements.

PUMP CONTROLS



COPES Pump Controls include simple pump governors (Type SDS-2 is shown; Leaflet P-P), master control systems, complete by-pass or recirculating systems for pump protection. Engineering data on request.

REDUCING VALVES

Built for the jobs too difficult to be handled effectively by the ordinary stock valves. Individually built for your specific needs. Accurate. Dependable. Low velocities mean low noise level. Bulletin 477-P.

SELF-CONTAINED DESUPERHEATERS

Completely self-contained. Needs no alloy steel in downstream piping—no extra connections into this line—no run of piping to temperature element. Low velocities minimize vibration, wear and noise. Cooling water is controlled and fully atomized inside chamber, eliminating extra connections. As accurate on light flows as on full loads. Low-cost maintenance. Bulletin 405-P.

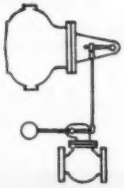
You'll find COPES a dependable source of supply for flow, level, pressure and temperature controls as shown here. Each unit will be designed and built for the conditions you specify—for optimum performance at minimum over-all cost. Write in detail when you have a tough problem.

NORTHERN EQUIPMENT DIVISION
Continental Foundry & Machine Company
1311 GROVE DRIVE, ERIE, PENNSYLVANIA

BOILER STEAM TEMPERATURE CONTROL

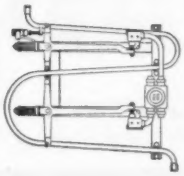
Maintains uniform steam temperature over full boiler load range, under all load conditions. Actuated by outlet steam temperature and rate of steam flow. For recommendations, explain your needs.

LIQUID LEVEL CONTROLS



For open or closed vessels. Improved float chambers or flange-type floats, with mechanical or fluid connections to COPES Balanced Valves. Pressures to 400 psi.

HI-LOW WATER ALARMS

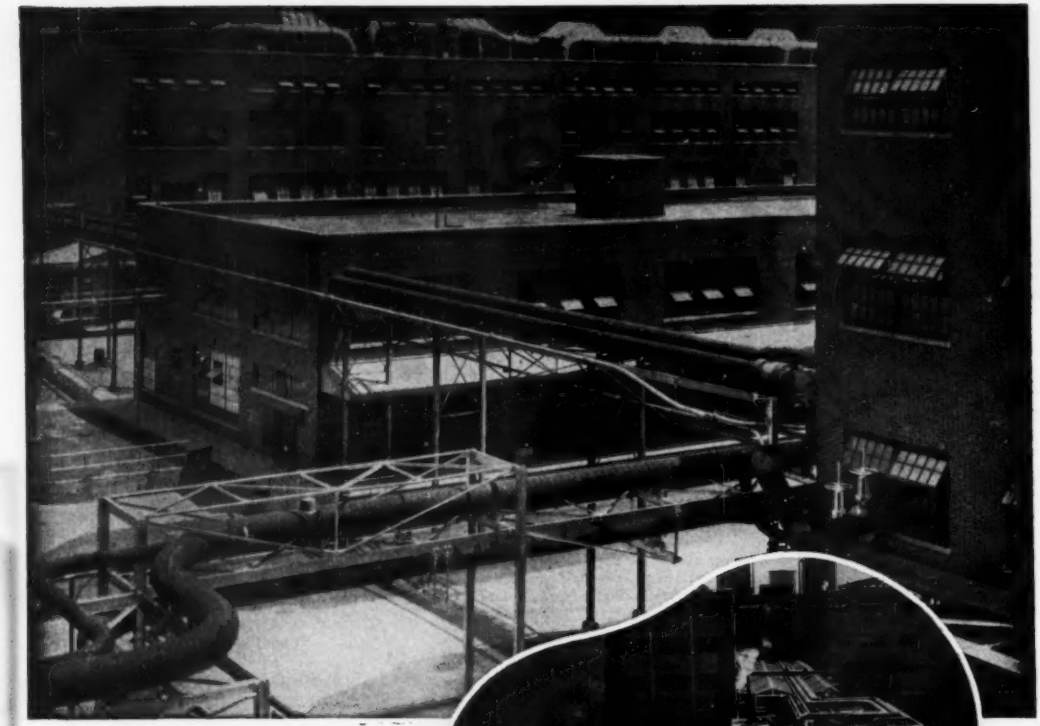


Operates dependably at any pressure from 25 to 1500 psi. Protects during start-ups and shut-downs. No internals to wear or foul. Leaflet CN 205-002-P.

BALANCED CONTROL VALVES

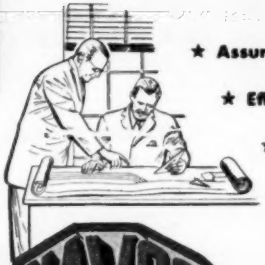
Practically frictionless. Closely balanced. Leaflet P-3-P.

WATER REGULATION



Operating Cost Savings

ENGINEERED INTO PIPING BY NAVCO



★ Assured Safety

★ Efficient Operation

★ Minimum Fuel Costs

★ Low Maintenance

★ Long Trouble-Free Life

Careful and expert preliminary engineering work by Navco Engineers, in addition to employing the most modern fabricating and erection methods, are your guarantee of operating savings.

Consult Navco for just a Pipe Bend, or a complete Piping System.

NAVCO

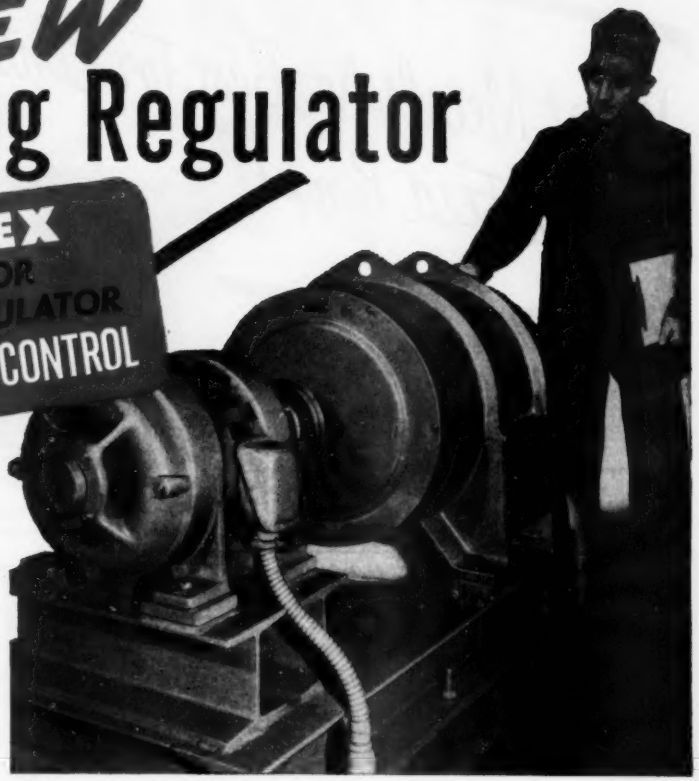
NAVCO PIPING

NATIONAL VALVE & MANUFACTURING COMPANY • PITTSBURGH, PA.

NEW YORK • CHICAGO • CLEVELAND • BOSTON • ATLANTA • TULSA • BUFFALO • CINCINNATI

NEW Rotating Regulator

REGULEX
GENERATOR VOLTAGE REGULATOR
POWER PLANT CONTROL



1 Minimizes the effect of disturbances caused by sudden load changes and fault conditions.

2 Controls generator excitation so as to increase safe operating limits.

3 Provides proper division of reactive current between synchronous machines operating in parallel when a cross current compensator is applied.

4 Provides accurate, sensitive voltage control.

5 Functions without hunting.

6 Provides high rate of excitation voltage response to restore voltage to normal as quickly as possible after a disturbance.

7 Provides alternate manual control of excitation without disturbance of the existing excitation.

WHEN SELECTING generator voltage regulators for your power plant, consider these seven big advantages of new *Regulex* control. Remember that *Regulex* control gives you pin-point accuracy while improving service continuity by reducing outages for maintenance. You can use *Regulex* generator voltage regulators on alternators, synchronous condensers and dc generators. Call your A-C representative or write Allis-Chalmers, Milwaukee 1, Wisconsin for further information.

A-3298

Regulex is an Allis-Chalmers trademark.

ALLIS-CHALMERS

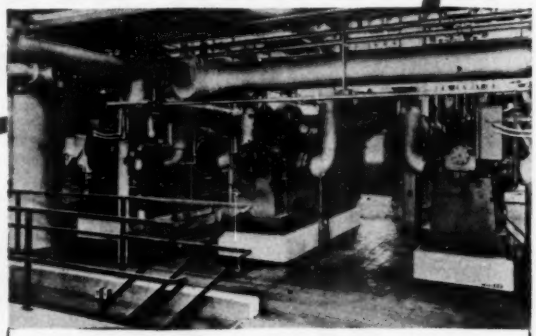
Order Telegraph Systems

The Allis-Chalmers Order Telegraph System is accurate and reliable . . . can be depended upon even during station power failure because it uses the dc bus for its power source. An alarm system operates until the order is returned correctly. Five or ten inch semi-flush dials for switchboard mounting. Use it to transmit orders between switchboard and turbine room.

Automatic Speed Control for Boiler Draft Fans

Draft fans operate at exactly the required speed for perfect combustion when Allis-Chalmers Type 257 Liquid Rheostats are used with wound rotor drive motors. They are application engineered to provide straight line speed characteristics . . . automatic wide range stepless speed control. Use electric, pneumatic or hydraulic pilot devices. Ask for leaflet 14S7544.

What Metals Are Best For Centrifugal Boiler Feed Pumps?

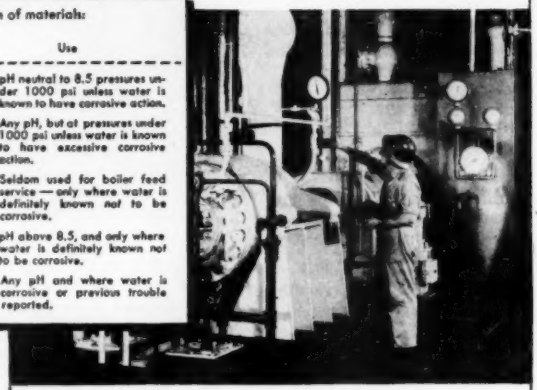


Three Worthington Axially Split Centrifugal Boiler Feed Pumps At The Kansas Power And Light Company Plant, Hutchinson, Kansas.

Drawing on their long experience in the field of hydraulics, Worthington engineers produce boiler feed pumps that are metallurgically correct in design, meeting every requirement as to temperature, pressure and corrosion-erosion resistance. As a result, Worthington boiler feed pumps perform better and last longer.

The following table represents Worthington's recommendation of materials:

Casing	Fittings	Maximum Temperature	Use
1. Cast Iron	Bronze	250 F	pH neutral to 8.5 pressures under 1000 psi unless water is known to have corrosive action.
2. Cast Iron	13% Chromium Stainless Steel	350 F	Any pH, but at pressures under 1000 psi unless water is known to have excessive corrosive action.
3. Carbon Steel	Bronze	250 F	Seldom used for boiler feed service — only where water is definitely known *not* to be corrosive.
4. Carbon Steel	13% Chromium Stainless Steel	400 F	pH above 8.5, and only where water is definitely known not to be corrosive.
5. 5% or higher Chromium Steel	13% Chromium Stainless Steel	Any temperature normally encountered	Any pH and where water is corrosive or previous trouble reported.



One of Several Solid Barrel, Radially Split, High Pressure Boiler Feed Pumps at the Trenton Channel Station of the Detroit Edison Co.

This proven selection of materials coupled with the most advanced design, superior workmanship and a thorough knowledge of application show why . . .

THERE'S A *RIGHT* WORTHINGTON PUMP FOR YOU

. . . *right* for the pressure and temperature of your boiler feed service . . . *right* for maximum economy and dependability. For further proof that *there's more worth in Worthington*, contact our nearest District Office, or write to *Worthington Pump and Machinery Corporation, Centrifugal Pump Division, Harrison, N. J.*

MEMBER

WORTHINGTON

C1.2

THE WORLD'S BROADEST LINE ASSURES YOU THE RIGHT PUMP FOR EVERY JOB

For Boiler Feed Service — Capacities to 1500 GPM — Heads to 1000 Ft.

For Hotwell, Condensate, Chilled Water Service — Capacities to 1400 GPM — Heads to 650 Feet

For Boiler Feed Service — Capacities to 1500 GPM — Heads to 1600 Feet

For Water Works, Circulation, Drainage, General Service — Capacities to 135,000 GPM — Heads to 400 Feet

For Boiler Feed Service — Capacities to 1600 GPM — Heads to 3500 Feet

For Boiler Feed Service — Capacities to 3000 GPM — Heads to 7000 Feet

Walworth manufactures a *complete line* of Gate, Globe, Angle, Check, and Lubricated Plug Valves, made of Stainless Steel, Steel, Iron, Bronze, and Special Alloys in a wide range of sizes and temperature-pressure ratings.

Fittings of steel, iron, and bronze are also manufactured in all conventional types and sizes.

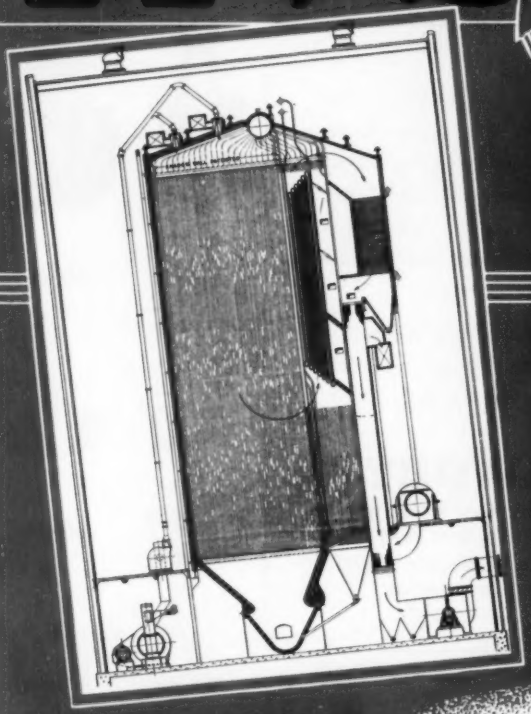
WALWORTH

valves and fittings

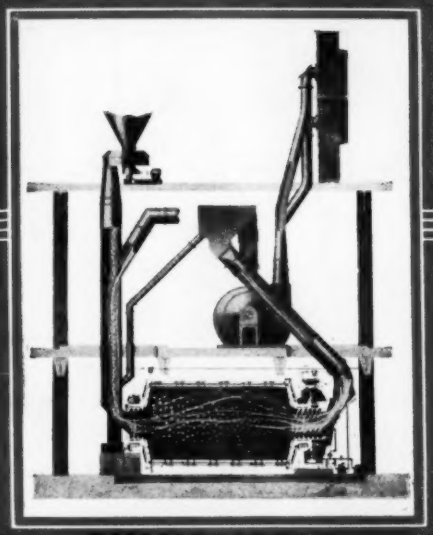
60 East 42nd Street, New York 17, N. Y.

Distributors in principal centers throughout the world

KVS Engineered



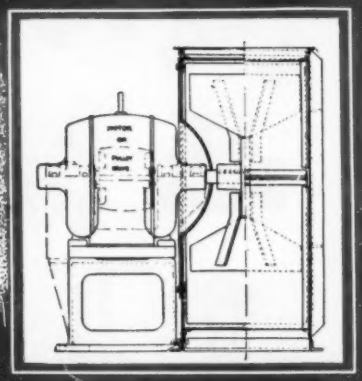
BOILERS, WATER WALLS
SUPERHEATERS, AIR PREHEATERS



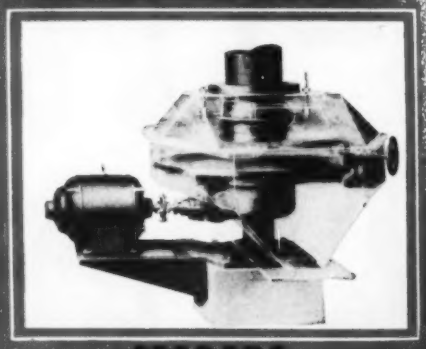
PULVERIZERS

WRITE FOR

A copy of Wyman Engineering Bulletin No. 44-2 containing valuable information on preparation of pulverized fuel and steam generating plants.



FANS



FEEDERS

POWER PLANTS and... Equipment

for operation on any fuel that will burn

ANY CAPACITY ANYWHERE

BOILERS

Available in standard designs in the range from 25,000 to 200,000 pounds of water evaporated per hour, from saturated temperatures to 1,000°F. at superheater outlet. Furnace volume, area and arrangement of heating surface, the generation of superheat and its control are engineered to meet the requirements of the specific plant.

FEEDERS

Enclosed Disc Type and extremely reliable in feeding coarse or fine material. Rate of feed easily varied. Complete enclosure prevents dust from escaping to boiler room. Accuracy of feed not affected by moisture in room.

FANS

Especially designed for pulverized fuel, the weight of a KVS Fan is several times that of the average exhauster. Substantially built with Herculite steel liners, heavy shafts, heavy bearings, stronger blade arms, stronger spiders. Made in sizes from 20" to 100" and designed for motor, pulley or steam turbine drive.

PULVERIZERS FOR WET OR DRY COAL

The KVS Air Swept Tube Mill is a slow speed ball mill which assures perfect pulverization by air separation. It will prepare all grades of coal at low cost. Superfine pulverization with wet coal ground in hot air results in the preparation of a carbureted fuel which is floated out as an impalpable powder and fed to the burners. Basic principle of operation is an exclusive KVS feature.

COAL BURNERS

This component may be either of the rotary or vortex type, is low in first cost and maintenance and high in availability. High turbulence completes carburization of coal and assures high furnace temperature on all grades of coal.

PREHEATERS

KVS Preheaters assure high overall efficiency with low exit gas temperatures. Downdraft gas and cross counterflow air type. Minimum pressure drop. Will safely handle gases having high sulphur content.

SUPERHEATERS

Final superheat temperatures controlled by most suitable methods: Separately fired superheater section, thermostatically controlled feedwater injection, external exchange of heat or by use of a bypass damper-controlled superheater in the first gas pass. Uniform steam temperatures assured at all ratings.

STEAM PURIFIERS

The KVS cyclone type steam drier and purifier produces steam in which the impurity carryover is less than .5 parts per million and the moisture content is less than ¼ of 1% with 100% feed water makeup. Recontamination of boiler water is eliminated by collecting solids and removing them from the boiler.

COMPLETE PLANTS

KVS ENGINEERING SERVICE

Kennedy Van Saun offers a service in the design, furnishing and erection of complete steam power plants for operation in any part of the World where fuel and water are available. This service contemplates all components, including electrical units, whether or not actually built by KVS, "from bunker to bus bar," and for operation on lowest grades fuel including waste, tailings, washings, in fact on any fuel, solid or liquid that will burn. The successful handling of this class of work in locations outside the continental limits of the United States is assurance that KVS service can be valuable to you *anywhere*.

KENNEDY-VAN SAUN QUALITY SERVICE Kennedy Products NEW YORK USA MFG. & WELCOR

Kennedy-Van Saun

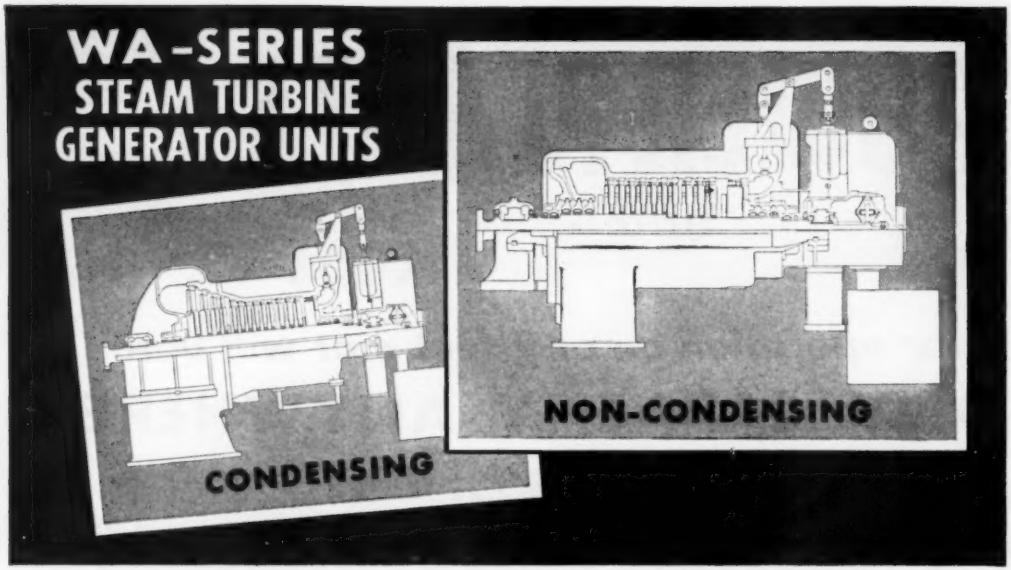
MANUFACTURING AND ENGINEERING CORPORATION

ARMY E NAVY

2 PARK AVENUE • NEW YORK 16, N. Y.

FACTORIES: DANVILLE, PA.

CANADA • ENGLAND • FRANCE • AUSTRALIA



Expanding? The WA-Series will Fit into Your Plant

TODAY INDUSTRY MUST EXPAND while producing at a record rate. To help this vital expansion, Allis-Chalmers offers modern WA-Series steam turbine generator units for industrial and utility steam power plants.

If you prefer high quality construction and modern design, be sure to investigate the recently announced WA-Series, now being built in ratings through 7500 kw. The most recent developments are embodied in this modern impulse design, built for both condensing and non-condensing service, with or without automatic extraction.

Built in NEMA ratings, the WA-Series steam turbine generators are compact, three-bearing, solidly coupled units. They are being built in the condensing type, for power generation only, and in the non-condensing and automatic extraction types, to tie in thermodynamically and provide a steam-power balance where process steam is used.

Design and construction of WA-Series units meet the rigid standards Allis-Chalmers has established for its entire steam turbine line. Just as in the larger steam turbines ranging to 150,000 kw, labyrinth steam seals are used for shaft glands and interstage packing. Corrosion and erosion resistant high chrome alloy steel buckets and nozzles are used throughout in the WA-Series.

WA-Series units are completely coordinated in design. Impulse turbine, housing type air-cooled generator, and exciter are all especially engineered to operate as a unit. *And*, the entire unit is manufactured, assembled, and tested under one supervision at one plant.

Make sure that your next generating unit is *quality* built and has *all* the latest features. Call your nearest A-C office or write to Allis-Chalmers, Milwaukee 1, Wisconsin. A-3312

ALLIS-CHALMERS

TURBINES & GENERATORS | CONDENSERS & PUMPS | SWITCHGEAR & BREAKERS | MOTORS & CONTROL | TRANSFORMERS | WATER CONDITIONING

World's Widest Range of Power Plant Equipment

T F

...easier and better the WeldELL way

For the *practical* facts about pipe welding fittings go to the *practical* men...the welding foreman; the pipe fitter foreman; the construction superintendent... who have used all kinds and know the field.

They will tell you that the job moves faster and costs stay down when WeldELLS and other Taylor Forge fittings are used

...because of the precision quarter markings, the sized end tangents, the accurate machine tool bevels and lands.

They will tell you that the job maintains momentum easier, smoother

...because of the completeness of the line and better identification markings.

They can tell you...at least, design men will...that the *finished* job is better

...because it is done with fittings that are engineered down to the last detail to meet all requirements of *every job*.

Yes, "WeldELLS have everything"...to make it *easier ...better*. Coupon brings lots of facts.

TAYLOR FORGE

TAYLOR FORGE & PIPE WORKS • *General Offices & Works:* Chicago 90, Ill. (P.O. Box 485). *Eastern Plant:* Carnegie, Pa. *Western Plant:* Fontana, Calif. *District Offices:* New York: 50 Church Street. Philadelphia: Broad Street Station Bldg. Pittsburgh: First National Bank Bldg. Chicago District Sales: 208 S. LaSalle Street. Houston: City National Bank Bldg. Los Angeles: Subway Terminal Bldg.

Please send a copy of your welding fittings and forged steel flange catalog 484.

Name_____

Position_____

Company _____

Street Address_____

City_____ Zone____ State_____

Mail to Taylor Forge & Pipe Works
P.O. Box 485, Chicago 90, Ill.

301-06551

Preferred — *because of:*

1. Research
Garlock research brings improved products to meet changing needs.

2. Quality
High quality is assured by quality-controlled construction throughout.

3. Service
Helpful service calls by Garlock representatives and complete factory co-operation.

4. Complete Line
There are Garlock products for every kind and type of service.

5. Long Life
Garlock products give long, dependable service because of their uniform fine quality.

In a recent nation-wide industrial survey over half of those interviewed gave GARLOCK as their first choice for packings and gaskets. The main factors influencing their choice are listed at the right.

Illustrated above are a few widely used Garlock products: **A.** Garlock 950 Gaskets, cut from Compressed Asbestos Sheet; **B.** Garlock 150 High Pressure Packing; **C.** Garlock 731 Lattice-Braid Coil Packing; **D.** Garlock 430 *Chevron** Packing; **E.** Garlock *Bitan** Leather Cups; **F.** Garlock 875 Gas Compressor Metal Packing — all of uniform high quality for *dependable* performance.

*Reg. U. S. Pat. Off.

THE GARLOCK PACKING COMPANY
PALMYRA, NEW YORK

In Canada: The Garlock Packing Company of Canada Ltd., Montreal, Que.

GARLOCK

PACKINGS, GASKETS AND OIL SEALS

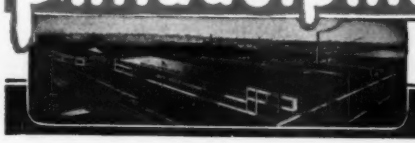
When power fails or any other emergency arises demanding manual valve operation LimiTorque Valve Controls prove their superiority again.

A positive, manual declutching lever disengages the motor driven worm gears and permits the handwheel to turn an independent set of bevel gears direct to the valve stem. This assures 3 to 4 times faster closing than is obtainable with other types of controls whose manual operations are all or in part through the main stem nut gearing. LimiTorque can always be declutched for handwheel operation regardless of weather or electrical conditions.

Remember—LimiTorques may be had for all types of valves and can be actuated by any available power source. Your valve manufacturer can supply them.

Write for the LimiTorque Catalog on your business letterhead, please.

Philadelphia Gear Works, INC.



ERIE AVE. AND G ST., PHILADELPHIA 34, PA.

NEW YORK • PITTSBURGH • CHICAGO • HOUSTON

IN CANADA: WILLIAM AND J. G. GREEY LIMITED, TORONTO

Industrial Gears and Speed Reducers
LimiTorque Valve Controls

ADD UP THE SCORE ON DE LAVAL'S *Double Protection*

$$\begin{array}{r} 2 \\ +\ 2 \\ \hline 4 \end{array}$$

1. REMOVAL OF BOTH DIRT AND WATER

De Laval machines remove both of the impurities that contaminate turbine lubricating oil. Centrifugal force throws all dirt out of the oil and stores it out of harm's way in the bowl; it separates out any water present and continually discharges it. Water once removed cannot recontaminate the oil.

2. CENTRIFUGAL FORCE DOES NOT REMOVE ADDITIVES

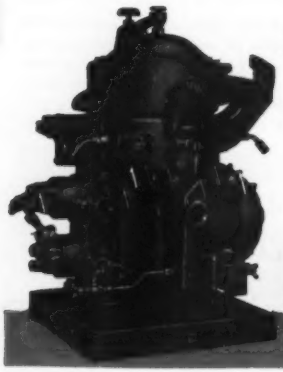
Centrifugal force alone never removes additives. Naturally inhibitors that are soluble in water will be lost with water that is removed from the lubricating oil, whether such removal is effected by centrifugals or filters. Usually very little water is present to be removed, so this cause of inhibitor reduction is inconsequential, but should a major water leak occur in the lubricating system, the centrifuge will promptly remove the water.

3. QUICKER . . . MORE COMPLETE SEPARATION

De Laval machines multiply the effectiveness of gravity over thousands of times! This means that quicker and more complete separation is possible by centrifugal force than by gravity methods. Moreover, De Laval machines are constant in efficiency. There are no functional parts to lose effectiveness during a run.

4. CENTRIFUGES TAKE CARE OF EMERGENCIES

De Laval machines are conservatively rated. They can handle wide variations in water without loss of seal or carry-over into the oil stream.

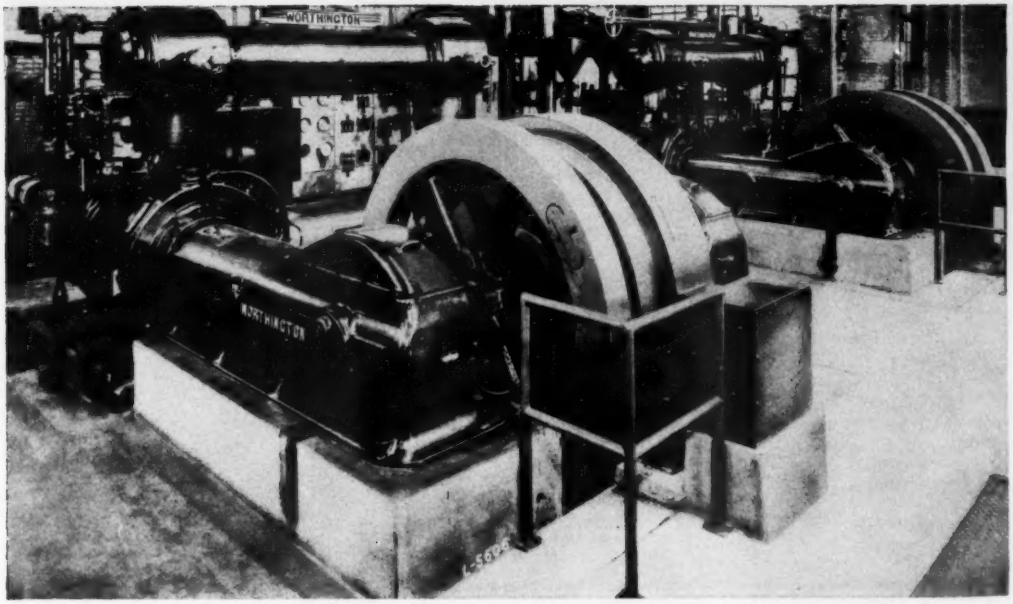


Most Protection per dollar—De Laval's Double Protection for turbines is complete and economical.

THE DE LAVAL SEPARATOR COMPANY
165 Broadway, New York 6 427 Randolph St., Chicago 6
DE LAVAL PACIFIC CO., 61 Beale St., San Francisco 5
THE DE LAVAL COMPANY, Limited, Peterborough, Ont.

DE LAVAL OIL PURIFIERS

for more dependable power production



Link-Belt "Hooks Up" with Worthington Air

You can't find a compressed air need that Worthington can't fill.

This installation pictured above is a Worthington DC2 air compressor in Link-Belt Company's Pershing Road plant in Chicago. And that picture could be duplicated all over America where engineering-wise plants insist upon dependable, trouble-free, low-cost air.

One reason is—*only* Worthington makes air compressors with the Feather* Valve. Any other valve is complicated beside this Worthington exclusive. Feather* Valve is the simplest, lightest, most efficient ever made.

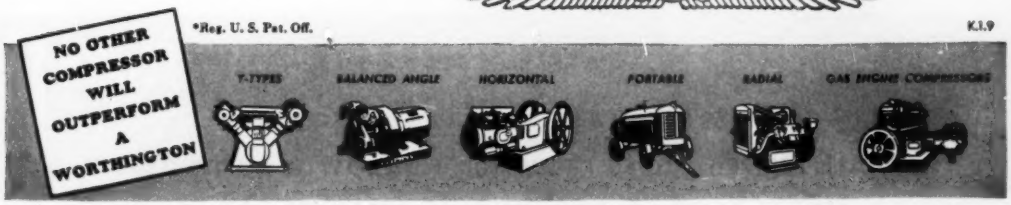
Then there's Worthington automatic variable capacity control—acknowledged the most accurate, flexible and simple control obtainable. And Worthington's high-efficiency intercooler that needs less water, less power, less attention.

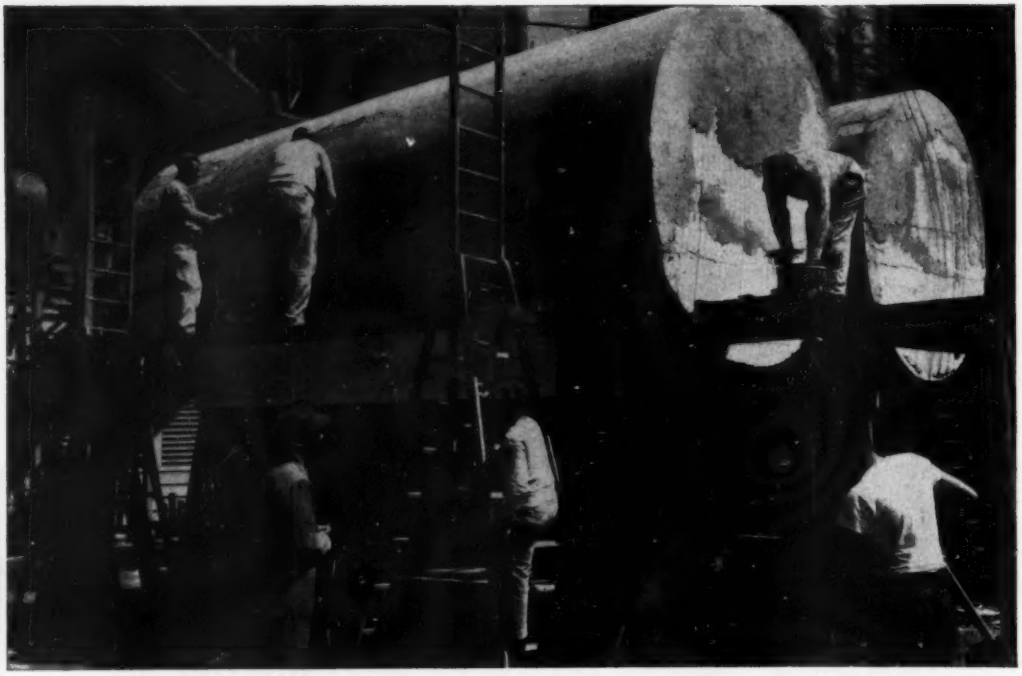
Build around these features with sturdy construction . . . back up the machinery with Worthington application engineering—and you have plenty of reasons for deciding *there's more worth in Worthington*. Worthington makes all auxiliary equipment, too. Write for bulletin L675 B-1B to Worthington Pump and Machinery Corporation, Compressor Division, Buffalo, N. Y.

WORTHINGTON

*Reg. U. S. Pat. Off.

K.I.9





How to buy a better heat insulation job

Before you sign a contract for heat insulation, take a minute to consider this fact:
More than 50% of the total cost of most heat insulation jobs is for labor!

So right along with your consideration of materials, conductivities, thicknesses, and prices should go a lot of thought as to your choice of a contractor. To get full value for the money you spend, it's just common sense to hire a reliable contractor with an established reputation for good workmanship. We believe you will find that Armstrong's contracting organization meets these requirements.

The complete facilities of the Armstrong organization provide all the essentials for a thorough job of heat insulation.

For men—Armstrong engineers have tackled and solved difficult applications of heat insulation in all fields of industry. Armstrong also offers the services of skilled construction superintendents, foremen, and installation mechanics who are well equipped to see that your job is done properly and on schedule.

For materials—Armstrong's Line covers the complete range of heat insulation requirements. Armstrong distributes and applies the products manufactured by Keasbey and Mattison Company—a well-known, top-quality line.

For reliability—When your job is completed, you have the assurance that the full resources of a financially responsible organization stand behind it. It must be satisfactory in every respect.

For the complete story on Armstrong's contracting organization and the services it offers, ask for your copy of the free booklet, "People Make A Good Insulation Job." Write to the Armstrong Cork Company, 7006 Maple Avenue, Lancaster, Pennsylvania.

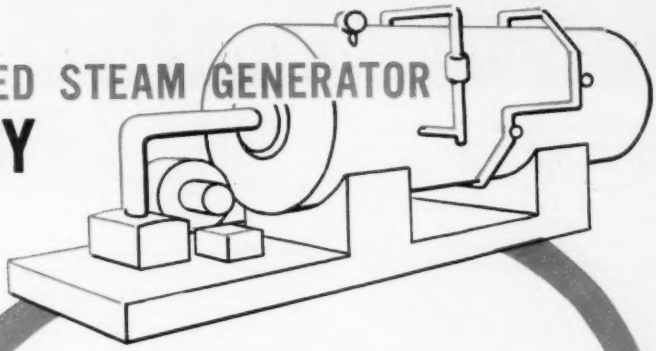
ARMSTRONG'S INDUSTRIAL INSULATIONS

MATERIALS - INSTALLATION

FOR ALL TEMPERATURES FROM 300°F. BELOW ZERO TO 2800°F.

Ideal Combination

FOR TOP SELF-CONTAINED STEAM GENERATOR EFFICIENCY



1

Nalco WATER TREATMENT

SCALE AND CORROSION PREVENTION

With a Nalco Service Policy and Nalco Chemicals to fit your water treatment requirements, you can keep your self-contained boilers operating indefinitely at top efficiency — without any of the costly difficulties caused by scale and corrosion. This part of the Nalco System was designed expressly to provide small boiler users with the same complete water treatment services enjoyed by thousands of the country's largest power plants. A new 4-page bulletin gives complete details on The Nalco System as applied to the modern self-contained boiler. Your copy will be sent promptly, without obligation.

Write for Bulletin 49

2

Nalco SR-155 FUEL OIL ADDITIVE

FUEL SAVING . . . CLEAN BURNERS

Nalco SR-155 is a *complete* fuel oil additive. It replaces two, three or more single-purpose additives to: (1) keep storage tanks, fuel lines and burners free of sludge and gum; (2) prevent soot formation in the firebox and flues; (3) inhibit corrosion throughout the fuel system; and (4) act as a combustion catalyst to assure complete burning of oil. Fuel savings and reduced maintenance costs usually more than repay the cost of continuous SR-155 treatment — and very little SR-155 is needed per 1,000 gallons of fuel oil! Details on Nalco SR-155 will be sent on request.

Write for Bulletin 46

NATIONAL ALUMINATE CORPORATION
6222 West 66th Place • Chicago 38, Illinois
Canadian inquiries should be addressed to Alchem Limited, Burlington, Ontario

THE Nalco SYSTEM • Serving Industry through Practical Applied Science

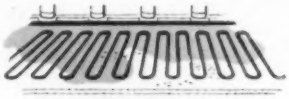
There's a Maintenance Threat in all these services...combat it with
BYERS WROUGHT IRON PIPE

If you have any of these piping services in prospect—watch out for corrosive attack! It's always a threat, and failure to use proper safeguards may mean early and costly maintenance.

Byers Wrought Iron pipe has made some outstanding records for durability in every one of these applications. We'll be glad to give you specific examples on request.

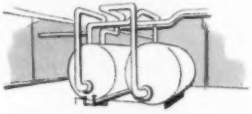
RADIANT HEATING

Genuine wrought iron is now serving in thousands of installations, of all sizes. The superior durability of the material is demonstrated by its comparative service in skating rinks—where conditions are even more severe.



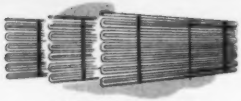
SNOW MELTING

Widely used not only because of its corrosion resistance, but because its mechanical strength protects it from crushing during installation and use.



STEAM RETURN LINES

Condensate is always aggressive. Genuine wrought iron return lines, properly installed, have proven remarkably effective in eliminating excessive repairs and replacements.



CONDENSERS

The extra long service life of genuine wrought iron makes it ideal for use in condensers. Direct comparison of service under identical conditions show that genuine wrought iron condensers usually last two to three times as long as low first-cost material.

AIR CONDITIONING

Many services are highly corrosive . . . and replacements are difficult and expensive. Genuine wrought iron has been used to safeguard operations in dozens of large installations.

UNDERGROUND LINES

Even in ordinary soil, corrosion is a hazard to underground lines. Genuine wrought iron provides a sound means of getting maximum life from every installation. User reports of 50 years service and more are not uncommon.

The corrosion resistance of genuine wrought iron comes from its unique composition and structure, which halts and disperses attack. Ask for bulletins on any services in which you are interested.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N. Y.

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

YOUR BUYERS' GUIDE

OF POWER FIELD PRODUCTS

AND THE COMPANIES THAT MAKE THEM

Directory of Manufacturers

More than 1000 manufacturers of power field products have told us what they make. To use this directory, first look under the noun in the product heading; for example, if you're looking for safety valves, look under "Valves, Safety." Company names and addresses are listed alphabetically under each heading.

If you need information on equipment that may no longer be manufactured, check the Index to Former Manufacturers, which begins on page 142.

ABSORBERS, SHOCK
(See Dampers, Vibration)

ABSORPTION SYSTEMS, REFRIGERATION
American Solvent Recovery Corp, 8th & Cassady Aves, Columbus 3, Ohio
Vogt, Henry, Machine Co. 1000 W Ormsby St. Louisville 10, Ky.
Worthington Pump & Machinery Corp, Harrison, N. J.
York Corp. York, Pa.

ACCUMULATORS, REFRIGERATION
Frick Co. W Main St. Waynesboro, Pa.
Greer Hydraulics Inc. 454 18th St. Brooklyn, N. Y.
Henry Valve Co. 3215 North Ave. Melrose Park, Ill.
McQuay Inc. 1600 Broadway St. N E. Minneapolis 13, Minn.
Murray, A B, Co. Inc. 608 Green Lane, Elizabeth, N. J.
Rempe Co. 340 N Sacramento Blvd. Chicago 12, Ill.
Vogt, Henry, Machine Co. 1000 W Ormsby St. Louisville 10, Ky.

ACCUMULATORS, STEAM
Foster Wheeler Corp. 165 Broadway, New York 6, N. Y.
General American Transportation Corp, 10 E 49 St. N. Y. 17, N. Y.
Hapman-Dutton Co. 622 Gibson St, Kalamazoo 11, Mich.
Heilman Boiler Wks. 132 Linden St. Allentown, Pa.
Murray, A B, Co. Inc. 608 Green Lane, Elizabeth, N. J.
Steel Products Corp. 52 Vanderbilt Ave. New York 17, N. Y.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.

ADSORBERS, ODOR
American Solvent Recovery Corp, 8th & Cassady Aves. Columbus 3, Ohio
Conner, W B. Engrg Corp. 500 Fifth Ave. New York 16, N. Y.
Elgin Softener Corp. 130 N Grove Ave. Elgin, Ill.
Filtrol Corp. 634 S Spring St. Los Angeles 14, Calif.
Foster Wheeler Corp. 165 Broadway, New York 6, N. Y.
Permutit Co. 330 W 42nd St. New York 18, N. Y.
Refinite Corp. Box 1312, Omaha, Nebr.
Schutte & Koerting Co. Cornwells Heights, Bucks County, Pa.

AFTERCOOLERS, AIR AND GAS
Adams, R P Co Inc. 211 E Park Dr. Buffalo 17, N. Y.
Andale Co. 1604 Arch St. Philadelphia, Pa.
Bell & Gossett Co. 8200 N Austin Ave. Morton Grove, Ill.
Brown Fintube Co. Elyria, Ohio
Chicago Pneumatic Tool Co. 6 E 44th St. New York 17, N. Y.
Condenser Service & Engrg Co. 89 River St. Hoboken, N. J.
Davis Engrg Corp. 1064 E Grand St. Elizabeth 4, N. J.
Doyle & Roth Mfg Co. 136-50 24th St. Brooklyn, N. Y.
Goodyer Industries, 224 S Michigan Ave. Chicago 4, Ill.
Griscom-Russell Co. 285 Madison Ave. New York 17, N. Y.
Harrison Radiator Div. General Motors Corp. Lockport, N. Y.
Ingersoll-Rand Co. 11 Broadway, New York 4, N. Y.
Johnson Corp. 805 Wood St. Three Rivers, Mich.
Joy Mfg Co. Dept 5, Oliver Bldg. Pittsburgh 22, Pa.
Lummus Co. 385 Madison Ave. New York 17, N. Y.
Murray, D J Mfg Co. 1024 Third St. Wausau, Wis.
Niagara Blower Co. 405 Lexington Ave. New York 17, N. Y.
Patterson-Kelley Co. Inc. 129 Burson St. East Stroudsburg, Pa.
Peabody Engrg Corp. 580 Fifth Ave. N. Y. 19, N. Y.
Pennsylvania Pump & Compressor Co, Easton, Pa.
Ross Heater & Mfg Co Inc. 1415 West Ave. Buffalo 13, N. Y.
Schutte & Koerting Co. Cornwells Heights, Bucks County, Pa.
Sims Co. 1402 E 18th St. Erie, Pa.
Worthington Pump & Machinery Corp, Harrison, N. J.
Young Radiator Co. 709 S Marquette St. Racine, Wis.

AIR COMPRESSORS
(See Compressors)

AIR CONDITIONERS, CENTRAL STATION
Air & Refrigeration Corp. 475 Fifth Ave. New York 17, N. Y.
Bahnson Co. 1001 S Marshall St. Winston-Salem, N. C.
Buffalo Forge Co. 488 Broadway, Buffalo 5, N. Y.
Bush Mfg Co. 177 South St. West Hartford 10, Conn.
Carrier Corp. 300 S Geddes St. Syracuse 1, N. Y.
Clarage Fan Co. North & Porter Sts. Kalamazoo 16, Mich.
Curtis Mfg Co. 1905 Kienlen Ave. St. Louis 20, Mo.
Frick Co. W Main St. Waynesboro, Pa.
General Electric Co. Air Conditioning Dept. 5 Lawrence St. Bloomfield, N. J.
McQuay Inc. 1600 Broadway St. N E. Minneapolis 13, Minn.
Niagara Blower Co. 405 Lexington Ave, New York 17, N. Y.
Ready Power Co. 11231 Freud Ave. Detroit, Mich.
Ross, J O Engrg Corp. 350 Madison Ave. New York 17, N. Y.
Surface Combustion Corp. 2375 Dorr St. Toledo 1, Ohio
Trane Co. LaCrosse, Wis.
U. S. Air Conditioning Corp. Como Ave S E at 33rd, Minneapolis 14, Minn.
Voss Machine Wks. 242 E 122nd St. New York, N. Y.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Westinghouse Elec Corp. Sturtevant Div. Hyde Park, Boston 36, Mass.
Worthington Pump & Machinery Corp. Harrison, N. J.
York Corp. York, Pa.
Young Radiator Co. 709 S Marquette St. Racine, Wis.

AIR CONDITIONERS, UNIT, INTEGRAL COMPRESSOR
Brunner Mfg Co. 1821 Broad St. Utica, N. Y.
Carrier Corp. 300 S Geddes St. Syracuse 1, N. Y.
Curtis Mfg Co. 1905 Kienlen Ave. St. Louis 20, Mo.
Dravo Corp. Dravo Bldg. Pittsburgh 22, Pa.
Fedders-Quigan Corp. 57 Tonawanda St. Buffalo 7, N. Y.
Frick Co. W Main St. Waynesboro, Pa.
General Electric Co. Air Conditioning Dept. 5 Lawrence St. Bloomfield, N. J.
Philco Corp. O & Tioga Sts. Phila. Pa.
Ready Power Co. 11231 Freud Ave. Detroit, Mich.
Servel, Inc. Evansville, Ind.
Trane Co., La Crosse, Wis.
U. S. Air Conditioning Corp. Como Ave S E at 33rd, Minneapolis 14, Minn.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Westinghouse Elec Corp. Sturtevant Div. Hyde Park, Boston 36, Mass.
Worthington Pump & Machinery Corp. Harrison, N. J.
York Corp. York, Pa.

AIR CONDITIONERS, UNIT, REMOTE COMPRESSOR
Air & Refrigeration Corp. 475 Fifth Ave. New York 17, N. Y.
American Blower Corp. Detroit 32, Mich.
Brunner Mfg Co. 1821 Broad St. Utica, N. Y.
Buffalo Forge Co. 488 Broadway, Buffalo 5, N. Y.
Carrier Corp. 300 S Geddes St. Syracuse 1, N. Y.
Clarage Fan Co. North & Porter Sts. Kalamazoo 16, Mich.
Curtis Mfg Co. 1905 Kienlen Ave. St. Louis 20, Mo
Dravo Corp. Dravo Bldg. Pittsburgh 22, Pa.
Frick Co. W Main St. Waynesboro, Pa.
General Electric Co. Air Conditioning Dept. 5 Lawrence St. Bloomfield, N. J.
McQuay Inc. 1600 Broadway St. NE. Minneapolis 13, Minn.
Niagara Blower Co. 405 Lexington Ave. New York 17, N. Y.
Trane Co. LaCrosse, Wis.
U. S. Air Conditioning Corp. Como Ave S E at 33rd, Minneapolis 14, Minn.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Westinghouse Elec Corp. Sturtevant Div. Hyde Park, Boston 36, Mass.
Worthington Pump & Machinery Corp. Harrison, N. J.
York Corp. York, Pa.

ALARMS, FLAME FAILURE
Autocall Co, 1047 Warden Ave. Shelby, Ohio
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Bristol Co. Waterbury 91, Conn.
Combustion Control Corp. 77 Broadway, Cambridge 42, Mass.
Ess Instrument Co. 96 S Washington Ave. Bergenfield, N. J.
Lients, B P, Mfg Co. 210 W 8th St. Kansas City, Mo.
Lumenite Electronic Co. 407 S Dearborn St. Chicago 5, Ill.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Minneapolis - Honeywell Regulator Co. 2753 4th Ave S. Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44, Pa.
Panellit Inc. Panalarm Products Div. 7216 N Clark St. Chicago 26 Wheelco Instruments Co. 847 W Harrison St. Chicago 7, Ill.

ALARMS, FLOW
Autocall Co. 1047 Warden Ave. Shelby, Ohio
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Barton Instr Corp. 1429 S Eastern Ave. Los Angeles 22, Calif.
Bristol Co. Waterbury 91, Conn.
Brooks Rotameter Co. Box 432, Lansdale, Pa.
Central Automatic Sprinkler Co. 4th & Cannon Ave. Lansdale, Pa.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1, N. Y.
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
Hays Corp. 742 E 8th St. Michigan City, Ind.
Hennsey Co, 202½ Water St. Watertown, Wis.
J-O Bell Products, 4840 S St. Louis, Chicago, Ill.
Magnetrol Inc. 2110 S Marshall Blvd. Chicago 23, Ill.
McDonnell & Miller, Inc. 3500 N Spaulding Ave. Chicago 18, Ill.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves, Philadelphia 44, Pa.
Nugent, Wm W. & Co Inc. 402 N Hermitage Ave, Chicago 22, Ill.
Panellit Inc. Panalarm Products Div. 7216 N Clark St. Chicago
Pennsylvania Industrial Instr Co. 3116 N 17th St. Philadelphia, Pa.
Richardson Scale Co. Clifton, N. J.
R-S Products Corp. 4600 Germantown Ave, Philadelphia 44, Pa.
Schaub, Fred H Engrg Co Inc. 2110 S Marshall Blvd. Chicago 23, Ill.
Schutte & Koerting Co. Cornwells Heights, Bucks County, Pa.
U. S. Gauge Div. American Machine & Metals Inc. Sellersville, Pa.

ALARMS, LIQUID LEVEL
Autocall Co. 1047 Warden Ave. Shelby, Ohio
Automatic Control Co. 1005 University Ave. St Paul 4, Minn.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Barton Instrument Corp. 1429 S Eastern Ave. Los Angeles 22, Calif.
Bristol Co. Waterbury 91, Conn.
Clark Controller Co. 1146 E 152nd St. Cleveland 10, Ohio
Climax Controls Div. Black, Sivalls & Bryson Inc. Box 1529, Tulsa 1, Okla.
Combustion Control Corp. 77 Broadway, Cambridge 42, Mass.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1, N. Y.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1, Wis.
Ess Instrument Co. 96 S Washington Ave. Bergenfield, N. J
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
Hays Corp. 742 E 8th St. Michigan City, Ind.
Huyette, Paul B. Co Inc. 401 N Broad St. Philadelphia 8, Pa.
Inferno Co. 115 Ricou St. Shreveport, La.
Jerguson Gage & Valve Co. 87 Fellsway, Somerville, Mass.
J-O Bell Products. 4840 S St. Louis, Chicago, Ill.
Johnson Corp. 805 Wood St. Three Rivers, Mich.
Kieley & Mueller Inc. 2013 43rd St. North Bergen, N. J.
Lumenite Electronic Co. 407 S Dearborn St. Chicago 5, Ill.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8, Ill.
McDonnell & Miller, Inc. 3500 N Spaulding Ave. Chicago 18, Ill.
Magnetrol Inc. 2110 S Marshall Blvd. Chicago 23, Ill.
Mason-Neilan Regulator Co. 1190 Adams St. Boston 24, Mass.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44, Pa.
Northern Equipment Div. Continental Foundry & Machine Co. 1945 Grove Drive, Erie, Pa.
Panellit Inc. Panalarm Products Div. 7216 N Clark St, Chicago 26, Ill.
Pennsylvania Industrial Instr Co. 3116 N 17th St. Philadelphia, Pa.
Photoswitch Inc. 77 Broadway, Cambridge 42, Mass.
R-S Products Corp. 4600 Germantown Ave, Philadelphia 44, Pa.
Reliance Gauge Column Co. 5902 Carnegie Ave, Cleveland 3, Ohio
Republic Flow Meters Co. 2222 Diversey Parkway, Chicago 47, Ill.
Ripley Co. Factory St. Middletown, Conn.
Schaub, Fred H Engrg Co. 2110 S Marshall Blvd. Chicago 23, Ill.
Servo-Tek Products Co. Inc. 4 Godwin Ave, Paterson 1, N. J.
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U. S. Gauge Div. American Machine & Metals Inc. Sellersville, Pa.
Wright-Austin Co. 3245 Wight St. Detroit 7, Mich.
Yarnall-Waring Co. Chestnut Hill, Philadelphia 18, Pa.

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Automatic Control Co. 1005 University Ave. St Paul 4, Minn.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Bristol Co. Waterbury 91, Conn.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1, N. Y.
Edison, Thomas A. Inc. Instrument Div. West Orange 3, N. J.
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
Fulton Sylphon Div. Robertshaw-Fulton Controls Co. Knoxville 4, Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
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Henschel Corp. 14 Cedar St. Amesbury, Mass.
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Mason-Neilan Regulator Co. 1190 Adams St. Boston 24, Mass.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44, Pa.
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Penn Electric Switch Co. Goshen, Ind.
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Ripley Co. Factory St. Middletown, Conn.
Square D Co. 4041 N Richards St. Milwaukee 12, Wis.
Uehling Instrument Co. 473 Getty Ave. Paterson 3, N. J.

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U S Gauge Div. American Machine & Metals Inc. Sellersville. Pa.

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Crouse Hinds Co. Wolf & Seventh N. Syracuse 1. N. Y.
Edison. Thomas A. Inc. Instrument Div. West Orange 3. N. J.
Fenwal Inc. 240 Pleasant St. Ashland. Mass.
Fischer & Porter Co. 500 County Line Rd. Hatboro. Pa.
Fulton Sylphon Div. Robertshaw-Fulton Controls Co. Knoxville 4. Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
H-B Instrument Co Inc. 2633 Trenton Ave. Phila 25. Pa.
Illinois Testing Labs. 420 S LaSalle St. Chicago 5. Ill.
Manning. Maxwell & Moore Inc. 11 Elias St. Bridgeport 2. Conn.
Marshalltown Mfg Co. 810 E Nevada. Marshalltown. Iowa
Mason-Neilan Regulator Co. 1190 Adams St. Boston 24. Mass.
Mercoid Corp. 4201 Belmont Ave. Chicago 41. Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
Oil-Rite Corp. 3478 S 13th St. Milwaukee 15. Wis.
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Pennsylvania Industrial Instr Co. 3116 N 17th St. Phila. Pa.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
Precision Thermometer & Instrument Co. 1401 Brandywine St. Phila 30. Pa.
Ripley Co. Factory St. Middletown. Conn.
Square D Co. 4041 N Richards St. Milwaukee 12. Wis.
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International Nickel Co. Inc. 67 Wall St. New York 5. N. Y.
Monsanto Chemical Co. 1700 S Second St. St Louis 4. Mo.

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Sticht. Herman H Co. 27 Park Place. New York 7. N. Y.
U S Gauge Div. American Machine & Metals. Sellersville. Pa.
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Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.
Wheelco Instruments Co. 847 W Harrison St. Chicago 7. Ill.

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Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
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Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Wheelco Instruments Co. 847 W Harrison St. Chicago 7. Ill.

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Hays Corp. 742 E 8th St. Michigan City. Ind.
Hotstream Heater Co. 2363 E 69th St. Cleveland 4. Ohio
Permutit Co. 330 W 42nd St. New York 18. N. Y.
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Bernitz Furnace Appliance Co. 89 Broad St. Boston 10. Mass.
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Carborundum Co. Perth Amboy. N. J.
Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22. Ill.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Detrick M H. Co. 111 W Washington St. Chicago 2. Ill.
Harbison-Walker Refractories Co. Farmers Bank Bldg. Pittsburgh 22. Pa.
Laclede Christy Co. 3600 Forbes St. Pittsburgh 13. Pa.
Mexico Refractories Co. Better Refractories Bldg. Mexico. Mo.
Pilbrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14. Ill.
Quigley Co. Inc. 527 Fifth Ave. New York 17. N. Y.
Ramtite Co. 2549 W 18th St. Chicago 8. Ill.
Reintjes. Geo P. Co. 2517 Jefferson St. Kansas City. Mo.
Rust Engrg Co. Rust Bldg. Pittsburgh 19. Pa.
Wickes Boiler Co. 512 N Water St. Saginaw. Mich.

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Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Bernitz Furnace Appliance Co. 89 Broad St. Boston 10. Mass.
Bigelow Liptak Corp. 2842 W Grand Blvd. Detroit 2. Mich.
Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22. Ill.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Detrick M H. Co. 111 W Washington St. Chicago 2. Ill.
Mexico Refractories Co. Better Refractories Bldg. Mexico. Mo.
Pilbrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14. Ill.
Power Piping Div. Blaw-Knox Co. 1525 Pennsylvania Ave. Pittsburgh 12. Pa.
Quigley Co Inc. 527 Fifth Ave. New York 17. N. Y.
Ramtite Co. 2549 W 18th St. Chicago 8. Ill.
Reintjes. Geo P. Co. 2517 Jefferson St. Kansas City. Mo.
Rust Engrg Co. Rust Bldg. Pittsburgh 19. Pa.
Wickes Boiler Co. 512 N Water St. Saginaw. Mich.

ARCHES, REFRACTORY

Armstrong Cork Co. Liberty St. Lancaster. Pa.
Bernitz Furnace Appliance Co. 89 Broad St. Boston 10. Mass.
Bigelow Liptak Corp. 2842 W Grand Blvd. Detroit 2. Mich.
Carborundum Co. Perth Amboy. N. J.
Carolina Refractories Co. Hartsville. S. C.
Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22. Ill.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Denver Fire Clay Co. P O Box 5510. Denver 17. Colo.
Detrick M H Co. 111 W Washington St. Chicago 2. Ill.
Green. A P. Fire Brick Co. Mexico. Mo.
Harbison-Walker Refractories Co. Farmers Bank Bldg. Pittsburgh 22. Pa.
Laclede Christy Co. 3600 Forbes St. Pittsburgh 13. Pa.
Mexico Refractories Co. Better Refractories Bldg. Mexico. Mo.
Norton Co. 1 New Bond St. Worcester 6. Mass.
Pilbrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14. Ill.
Quigley Co Inc. 527 Fifth Ave. New York 17. N. Y.
Ramtite Co. 2549 W 18th St. Chicago 8. Ill.
Reintjes. Geo P. Co. 2517 Jefferson St. Kansas City. Mo.
Rust Engrg Co. Rust Bldg. Pittsburgh 19. Pa.
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Greene. Tweed & Co. 322 Elm Ave. North Wales. Pa.
Industrial Products Co. 2923 N Fourth St. Philadelphia 33. Pa.
Johns-Manville. 22 East 40th St. New York 16. N. Y.
Keasbey & Mattison Co. Butler Ave. Ambler. Pa.
Mario Co. Inc. 434 Broadway. New York 13. N. Y.
Mundet Cork Corp. 7101 Tonnelle Ave. North Bergen. N. J.
Porter. H W & Co. Inc. 825 Frelinghuysen Ave. Newark 5. N. J.
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Ruberoid Co. 500 Fifth Ave. New York 18. N. Y.
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Union Asbestos & Rubber Co. Dept 1819. 332 S Michigan Ave. Chicago 4. Ill.

BAFFLES, BOILER

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Bernitz Furnace Appliance Co. 89 Broad St. Boston 10. Mass.
Carborundum Co. Perth Amboy. N. J.
Carolina Refractories Co. Hartsville. S. C.
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Harbison-Walker Refractories Co. Farmers Bank Bldg. Pittsburgh 22. Pa.
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Laclede Christy Co. 3600 Forbes St. Pittsburgh 13. Pa.
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Power Plant Efficiency Co. P O Box 592. Indianapolis 4. Ind.
Quigley Co. Inc. 527 Fifth Ave. New York. N. Y.
Ramtite Co. 2549 W 18th St. Chicago 8. Ill.
Refractory & Insulation Corp. 120 Wall St. New York 5. N. Y.
Reintjes. Geo P. Co. 2517 Jefferson St. Kansas City. Mo.
Rust Engrg Co. Rust Bldg. Pittsburgh 19. Pa.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Waite Construction Co. 111 Westminster St. Providence 3. R. I.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

BAROMETERS

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Chicago Belting Co. 125 N Green St. Chicago 7. Ill.
Cork Import Corp. 1 Engle St. Englewood. N. J.
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General Electric Co. Schenectady 5. N. Y.
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Gould National Batteries Inc. 467 Calhoun St. Trenton 7. N. J.
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Bond. Charles. Co. 617-623 Arch St. Philadelphia 6. Pa.
Boston Gear Wks. 14 Hayward St. Quincy 71. Mass.
Bunting Brass & Bronze Co. 715 Spencer St. Toledo 9. Ohio
Continental Gin Co. 4500 S 5th Ave. Birmingham 2. Ala.
Dodge Mfg Corp. Mishawaka. Ind.
Goodyer Industries. 224 S Michigan Ave. Chicago 4. Ill.
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Ahlberg Bearing Co. 3025 W 47 St. Chicago 32. Ill.
Ampco Metals Inc. 1701 S 38th St. Milwaukee 4. Wis.
Atlantic Gear Wks. 200 Lafayette St. New York 12. N. Y.
Bond. Charles. Co. 617-623 Arch St. Philadelphia 6. Pa.
Boston Gear Wks. 14 Hayward St. Quincy 71. Mass.
Bunting Brass & Bronze Co. 715 Spencer St. Toledo 9. Ohio
Continental Gin Co. 4500 S 5th Ave. Birmingham 2. Ala.
Dodge Mfg Corp. Mishawaka. Ind.
Goodyer Industries. 224 S Michigan Ave. Chicago 4. Ill.
Green Fuel Economizer Co Inc. 627 Main St. Beacon. N. Y.
Haynes Stellite Co. 725 S Lindsay St. Kokomo. Ind.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
Magnolia Metal Co. 18 W Jersey St. Elizabeth 4. N. J.
Sprout. Waldron & Co. Muncy. Pa.
Voss Machine Wks. 242 E 122nd St. New York. N. Y.

BELLOWS, METAL

Bridgeport Thermostat Div. 1225 Connecticut Ave. Bridgeport 1. Conn.
Chicago Metal Hose Corp. 1315 S Third Ave. Maywood. Ill.
Cook Electric Co. 2700 Southport Ave. Chicago 14. Ill.
Fulton Sylphon Co. Knoxville 15. Tenn.
Kopperman. Joseph & Sons. 310-16 New St. Phila 6. Pa.
Zallea Bros. 801 Locust St. Wilmington 99. Del.

BELTING, BALATA

Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Darcold Co Inc. 145 Sixth Ave. New York 13. N. Y.
Dick. R & J Co. Inc. 28 Sade St. Passaic. N. J.
Jeffrey Mfg Co. 932 N Fourth St. Columbus 16. Ohio
Manheim Mfg & Belting Co. Manheim. Pa.

BELTING, CANVAS

Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Darcold Co Inc. 145 Sixth Ave. New York 13. N. Y.
Goodall Rubber Co.. Whitehead Rd. Trenton 4. N. J.
Raniville. F Co. 241-251 Pearl St. N W. Grand Rapids 2. Mich.
Russell Mfg Co. Middletown. Conn.

BELTING, CONVEYOR

Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Bartlett. C O & Snow Co. 6200 Harvard Ave. Cleveland 5. Ohio
Boston Woven Hose & Rubber Co. P O Box 1071. Cambridge. Mass.
Cincinnati Rubber Mfg Co. Franklin Ave. Cincinnati 12. Ohio
Colorado Fuel & Iron Corp. Continental Oil Bldg. Denver 1. Colo.
Continental Gin Co. 4500 S Fifth Ave. Birmingham 2. Ala.
Darcold Co Inc. 145 Sixth Ave. New York 13. N. Y.
Dick. R & J Co. Inc. 28 Sade St. Passaic. N. J.
Goodrich. B F. Co. Akron. Ohio
Goodyear Tire & Rubber Co. Inc. 1144 E Market St. Akron 16. Ohio
Hewitt-Robins Inc. 370 Lexington Ave. New York 17. N. Y.
Jeffrey Mfg Co. 932 N Fourth St. Columbus 16. Ohio
Link-Belt Co. 300 W Pershing Rd. Chicago 9. Ill.
New York Belting & Packing Co. 1 Market St. Passaic. N. J.
Quaker Rubber Div. H K Porter Co. 4915 Comly St. Philadelphia 24. Pa.
Raybestos-Manhattan Inc. 61 Willett St. Passaic. N. J.
Republic Rubber Div. Lee Rubber & Tire Corp. Albert St. Youngstown 1. Ohio
Russell Mfg Co. Middletown. Conn.
Shingle Leather Co. 1300 Walnut St. Camden. N. J.
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.
Thermoid Co. Trenton. N. J.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.
Wickwire Spencer Steel Div. Colorado Fuel & Iron Corp. 575 Madison Ave. New York 22. N. Y.

BELTING, ELEVATOR

Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Bartlett. C O & Snow Co. 6200 Harvard Ave. Cleveland 5. Ohio
Boston Woven Hose & Rubber Co. P O Box 1071. Cambridge. Mass.
Cincinnati Rubber Mfg Co. Franklin Ave. Cincinnati 12. Ohio
Continental Gin Co. 4500 S 5th Ave. Birmingham 2. Ala.
Darcold Co Inc. 145 Sixth Ave. New York 13. N. Y.
Dick. R & J Co. Inc. 28 Sade St. Passaic. N. J.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Goodrich. B F. Co. Akron. Ohio
Goodyear Tire & Rubber Co. Inc. 1144 E Market St. Akron 16. Ohio
Hewitt-Robins Inc. 370 Lexington Ave. New York 17. N. Y.
Link-Belt Co. 300 W Pershing Rd. Chicago 9. Ill.
New York Belting & Packing Co. 1 Market St. Passaic. N. J.
Quaker Rubber Div. H K Porter Co. 4915 Comly St. Philadelphia 24. Pa.
Raybestos-Manhattan Inc. 61 Willett St. Passaic. N. J.
Republic Rubber Div. Lee Rubber & Tire Corp. Albert St. Youngstown 1. Ohio
Thermoid Co.. Trenton. N. J.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.

BELTING, LEATHER

Alexander Bros. 406 N 3rd St. Phila 7. Pa.
Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Baldwin Belting Inc. 74-76 Murray St. New York 7. N. Y.
Bond. Charles Co. 617-623 Arch St. Philadelphia 6. Pa.
Chicago Belting Co. 125 N Green St. Chicago 7. Ill.
Darcold Co Inc. 145 Sixth Ave. New York 13. N. Y.
Fisher Leather Belting Co Inc. 328 N Third St. Phila 6. Pa.
Graton & Knight Co. 356 Franklin St. Worcester 4. Mass.
Houghton. E F & Co. 303 W Lehigh Ave. Phila 33. Pa.
Rhoads. J E & Sons. 35 N 6th St. Philadelphia 6. Pa.
Schieren. Chas A Co. 30 Ferry St. New York 38. N. Y.
Shingle Leather Co. 1300 Walnut St. Camden. N. J.
Whiting Leather & Belting Co. 9 Murray St. New York 7. N. Y.
Williams. I B. & Sons. 51 Washington St. Dover. N. H.

BELTING, RUBBER

American Pulley Co. 4200 Wissahickon Ave. Phila 29. Pa.
Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Atlantic Gear Wks. 200 Lafayette St. New York 12. N. Y.
Boston Woven Hose & Rubber Co. P O Box 1071. Cambridge. Mass.
Cincinnati Rubber Mfg Co. Franklin Ave. Cincinnati 12. Ohio
Darcold Co Inc. 145 Sixth Ave. New York 13. N. Y.
Dick. R & J Co. Inc. 28 Sade St. Passaic. N. J.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
Gates Rubber Co. 999 S Broadway. Denver 17. Colo.
Gilmer. L H. Div of U S Rubber Co. Tacony. Philadelphia 35. Pa.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Goodrich. B F. Co. Akron. Ohio.
Goodyear Tire & Rubber Co. Inc. 1144 E Market St. Akron 16. Ohio
Hewitt-Robins Inc. 370 Lexington Ave. New York 17. N. Y.
New York Belting & Packing Co. 1 Market St. Passaic. N. J.
Quaker Rubber Div. H K Porter Co. 4915 Comly St. Philadelphia 24. Pa.
Raybestos-Manhattan Inc. 61 Willett St. Passaic. N. J.
Rockwood Mfg Co Inc. 1801 English Ave. Indianapolis 6. Ind.
Russell Mfg Co. Middletown. Conn.
Schieren. Chas A Co. 30 Ferry St. New York 38. N. Y.
Thermoid Co. Trenton. N. J.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.
Wood's. T B Sons Co. Fifth Ave. Chambersburg. Pa.
Worthington Pump & Machinery Corp. Harrison. N. J.

BELTS, "V"

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
American Pulley Co. 4200 Wissahickon Ave. Phila 29. Pa.
Atlantic Gear Wks. 200 Lafayette St. New York 12. N. Y.
Baldwin Belting Inc. 74-76 Murray St. New York 7. N. Y.
Bond. Charles. Co. 617-623 Arch St. Philadelphia 6. Pa.
Boston Woven Hose & Rubber Co. P O Box 1071. Cambridge. Mass.
Chicago Belting Co. 125 N Green St. Chicago 7. Ill.
Collins Packing Co Inc. 401 N Broad St. Philadelphia 8. Pa.
Continental Gin Co. 4500 S 5th Ave. Birmingham 2. Ala.
Darcold Co Inc. 145 Sixth Ave. New York 13. N. Y.
Dayton Rubber Co. 2342 W Riverview Ave. Dayton 1. Ohio
Dick. R & J Co. Inc. 28 Sade St. Passaic. N. J.
DoAll Co. Des Plaines. Ill.
Dodge Mfg Corp. Mishawaka. Ind.
Gates Rubber Co. 999 S Broadway. Denver 17. Colo.
Gilmer. L H. Div of U S Rubber Co. Tacony. Philadelphia 35. Pa.
Goodrich. B F. Co. Akron. Ohio
Goodyear Tire & Rubber Co. Inc. 1144 E Market St. Akron 16. Ohio
Jones. W A. Foundry & Machine Co. 4401 Roosevelt Rd. Chicago 24. Ill.
Link-Belt Co. 300 W Pershing Rd. Chicago 9. Ill.
Lovejoy Flexible Coupling Co. 5098 W Lake St. Chicago 44. Ill.
Manheim Mfg & Belting Co. Manheim. Pa.
Medart Co. 100 Potomac St. St. Louis 18. Mo.
New York Belting & Packing Co. 1 Market St. Passaic. N. J.
Quaker Rubber Div. H K Porter Co. 4915 Comly St. Philadelphia 24. Pa.
Raybestos-Manhattan Inc. 61 Willett St. Passaic. N. J.
Reeves Pulley Co. Columbus. Ind.
Republic Rubber Div. Lee Rubber & Tire Corp. Albert St. Youngstown 1. Ohio
Rhoads. J E & Sons. 35 N 6th St. Philadelphia 6. Pa.
Rockwood Mfg Co. Inc. 1801 English Ave. Indianapolis 6. Ind.
Schieren. Chas A Co. 30 Ferry St. New York 38. N. Y.
Thermoid Co. Trenton. N. J.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.
Wood's. T B Sons Co. Fifth Ave. Chambersburg. Pa.
Worthington Pump & Machinery Corp. Harrison. N. J.

BENDERS, CONDUIT, PIPE TUBING

American Pipe Bending Machine Co. 99 Furnace St. Poultney. Vt.
Appleton Electric Co. 1701-41 Wellington Ave. Chicago 13. Ill.
Baldwin - Lima - Hamilton Corp. Paschall P O. Philadelphia 42. Pa.

OPERATION: FLEXIBILITY

A CLEAVER-BROOKS STEAM BOILER GIVES YOU:

✓ **Quick, effortless response to fluctuating steam demands.**

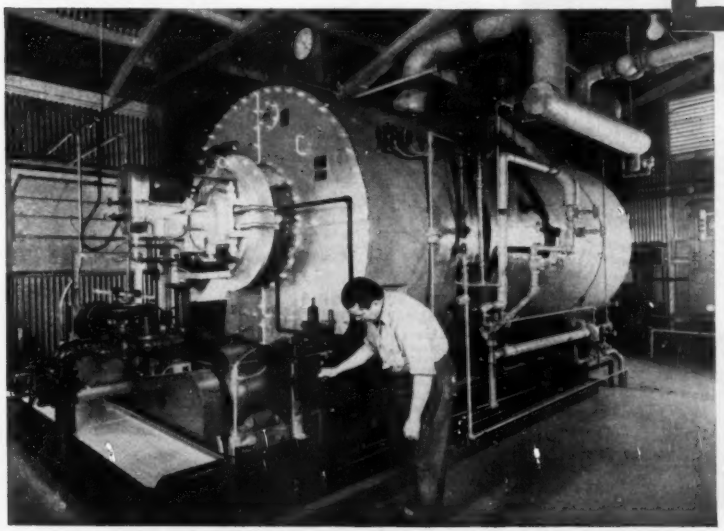
✓ **Equally high efficiency (80%) operating with oil or gas.**

Fluctuating steam loads are no problem when you have a custom-planned Cleaver-Brooks boiler in your plant. Whether your demand is heavy or light, steady or variable, these sturdy heavy-duty boilers respond instantly to your steam needs. Even with loads as low as 30% of rating, Cleaver-Brooks boilers operate with a flat 80% efficiency.

Cleaver-Brooks boilers burn either oil or gas . . . either fuel is properly proportioned to meet your steam demand and need. No banking of fires or loss of valuable heat during low load periods. You benefit with lower fuel bills, less maintenance, reduced operating costs.

If you are considering a change in your present boiler plant—think about flexibility — and get the complete facts about Cleaver-Brooks custom-planned boilers. Cleaver-Brooks self-contained boilers 15 to 500 HP, 15 to 250 lbs., p. s. i. — oil, gas, combination oil and gas firing. CLEAVER-BROOKS COMPANY, 332 East Keefe Avenue, Milwaukee 12, Wisconsin.

Cleaver-Brooks
STEAM BOILERS
the first and finest of their class



Write for a Cleaver-Brooks Steam Boiler Catalog.

SPEEDYLECTRIC

Steam Generator
For high pressure, high temperature process steam
Ask for Bulletin 32P

SPEEDYTHERM

Boiler
For precise high temperature processing at low pressure
Ask for Bulletin 38P
For effective steam detergent cleaning

SPEEDYLECTRIC

Steam-Jet Cleaners
JC-30 JC-20 JC-10
Ask for Bulletins 74P, 75P, 76P

For Steam Spray Painting

SPEEDYLECTRIC

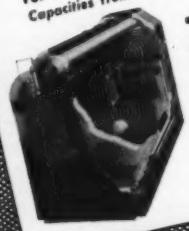
Packaged unit SP 500
Ask for Bulletin 51CP

Livingstone Engineering Company
Manufacturers of Steam Generator
100 Grove Street • Worcester 5, Mass.

Water Tube and Fire Tube
BOILERS BY
BIGELOW

Water Tube Boilers—Bent Tube Types
Horizontal Return Tubular Boilers
Scotch Type Boilers
Two-Pass Boilers
Electric Steam Generators

For Example—BIGELOW'S TYPE B BOILER
Capacities from 5,000 to 40,000 lbs. per hr.



• Factory fabricated boilers require minimum field work.
• In many cases, sizes to 25,000 lbs. per hr. shipped completely assembled.
• Water tubes along furnace side walls reduce maintenance cost.
• High efficiency with any firing method.
• Takes high overloads without disturbing water level.

BI-6

THE BIGELOW COMPANY
NEW HAVEN 3, CONN.
Boston • New York • Philadelphia • Syracuse
Detroit • Chicago • Atlanta • Milwaukee • New Orleans • Oklahoma City • Petersburg, Va.
Washington, D. C. • Albuquerque • San Francisco
Seattle • Sumter, S. C.
Est. 1833

Blackhawk Mfg Co. 8325 W Rogers St. Milwaukee 1, Wis.
Graybar Electric Co. Inc. 420 Lexington Ave. N. Y. 17. N. Y.
Greenlee Tool Co. 2136 Twelfth St. Rockford, Ill.
Imperial Brass Mfg Co. 1200 W Harrison St. Chicago 7, Ill.
National Pipe Bending Co. 114 River St. New Haven 13, Conn.
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12, Ohio
Steel & Tubes Div, Republic Steel Corp. 212 E 131st St. Cleveland 8, Ohio
Tal Prestal Bender, Inc. 417 N Water St. Milwaukee 2, Wis.
Watson Stillman Co. 108 Aldene Rd. Roselle, N. J.

BLOCKS, PILLOW

Ahlberg Bearing Co. 3025 W 47th St. Chicago 32, Ill.
Bartlett, C O & Snow Co. 6200 Harvard Ave. Cleveland 5, Ohio
Bond, Charles, Co. 617-623 Arch St. Philadelphia 6, Pa.
Boston Gear Wks. 14 Hayward St. Quincy 71, Mass.
Chain Belt Co. 1674 W Bruce St. Milwaukee 4, Wisc.
Continental Gin Co. 4500 S 5th Ave. Birmingham 2, Ala.
Dick, R & J Co. Inc. 28 Sade St. Passaic, N. J.
Dodge Mfg Corp. Mishawaka, Ind.
Fafnir Bearing Co. Booth St. New Britain, Conn.
Filer & Stowell Co. 147 E Becher St Milwaukee 7, Wisc.
Hewitt-Robins Inc. 370 Lexington Ave. New York 17, N. Y.
Jeffrey Mfg Co. 932 N Fourth St. Columbus 16, Ohio
Jones, W A, Foundry & Machine Co. 4401 Roosevelt Rd. Chicago 24, Ill.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16, N. Y.
Link-Belt Co. Bearing Div. 519 N Holmes Ave. Indianapolis 6, Ind.
Medart Co. 100 Potomac St. St Louis 18, Mo.
S K F Industries, Inc. Front St & Erie Ave. Philadelphia 32, Pa.
Sprout, Waldron & Co. Muncy, Pa.
Standard Pressed Steel Co. Jenkintown, Pa.
Stephens-Adamson Mfg Co. 5 Ridgeway, Aurora, Ill.
Wood's, T B Sons Co. Fifth Ave. Chambersburg, Pa.

BLOWDOWN SYSTEMS, BOILER, CONTINUOUS

Cochrane Corp. 17th St & Allegheny Ave. Philadelphia 32, Pa.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Doyle & Roth Mfg Co. 136-50 24th St. Brooklyn, N. Y.
Drew, E F & Co Inc. 15 E 26th St. New York 10, N. Y.
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
Graver Water Conditioning Co. 216 W 14th St. New York 11, N. Y.
Heilman Boiler Wks. 132 Linden St. Allentown, Pa.
Hensley Co. 202¼ Water St. Watertown, Wis.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16, N. Y.
Madden P E & Co. 352 W Walton St. Chicago 10, Ill.
Permutit Co. 330 W 42nd St. New York 18, N. Y.
Stout, David, & Sons. 7016 Manchester. St Louis 17, Mo.
Strong, Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13, Ohio
Taylor Instrument Cos. 95 Ames St. Rochester 1, N. Y.
Whitlock Mfg Co. 46 South St. Hartford 10, Conn.

BLOWERS, SCAVENGING AND SUPERCHARGING

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1, Wis.
Brown Boveri Corp. 19 Rector St. New York 6, N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
DeLaval Steam Turbine Co. Trenton 2, N. J.
Elliott Co. Jeannette, Pa.
Johnson Fan Blower Corp. 1319 W Lake St. Chicago 7, Ill.
Joy Mfg Co. Dept 5. Oliver Bldg. Pittsburgh 22, Pa.
Lamson Corp. Lamson St. Syracuse 1, N. Y.
Read Standard Corp. Erie, Pa.
Ripley Co. Factory St. Middletown, Conn.
Roots-Connersville Blower Corp. 900 W Mount St. Connersville, Ind.
U. S. Hoffman Machinery Corp. 105 4th Ave. New York, N. Y.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.

BLOWERS, SOOT

Bayer Co. 4030 Chouteau Ave. St Louis 10, Mo.
Boiler Equip Trust. Pelham, Mass.
Breuer Electric Mfg Co. 5100 N Ravenswood Ave. Chicago 40, Ill.
Brunt Mfg Co. 60 S Division St. Buffalo 3, N. Y.
Chesterton, A W Co. 6 Ashland St. Everett 49, Mass.
Diamond Power Specialty Corp. Lancaster, Ohio
Hahn-Pitz Corp. 226 Scholes St. Brooklyn 6, N. Y.
Inferno Co. 115 Ricou St. Shreveport, La.
Johnson Fan & Blower Corp. 1319 W Lake St. Chicago 7, Ill.
Keystone Grate & Blower Works. Lincoln Highway East. Chambersburg, Pa.
Lamson Corp. Lamson St. Syracuse 1, N. Y.
Marion Machine Foundry & Supply Co. Marion, Ind.
Robertson III, James L. Box 132. St George. Staten Island 1, N. Y.
Skilisaw Inc. 5033 N Elston Ave. Chicago 30, Ill.
Vulcan Soot Blower Corp. 341-349 Dock St. DuBois, Pa.

BOARDS, ASBESTOS

Carey, Philip Mfg Co. Lockland. Cincinnati 15, Ohio
Ehret Magnesia Mfg Co. Valley Forge, Pa.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7, Ill.
Johns-Manville. 22 E 40th St. New York 16, N. Y.
Keasbey & Mattison Co. Butler Ave. Ambler, Pa.
Ruberoid Co. 500 Fifth Ave. New York 18, N. Y.

BOARDS, MINERAL WOOL

Baldwin-Hill Co. 500 Breunig Ave. Trenton 2, N. J.
Ehret Magnesia Mfg Co. Valley Forge, Pa.
Owens - Corning Fiberglas Corp. Wayne Bldg. Toledo 1, Ohio
Refractory & Insulation Corp. 120 Wall St. New York 5, N. Y.
Standard Asbestos Mfg Co. 860 W Evergreen Ave. Chicago 22, Ill.

BOILERS, ELECTRIC

American Hydrotherm Corp. 33-70 12th St. Long Island City 6, N. Y.
Bigelow Co. Lloyd & River Sts. New Haven 13, Conn.
Brown Boveri Corp. 19 Rector St. New York 6, N. Y.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16, N. Y.
Hynes Elec Heating & Process Div. 1815 W Sedgley Ave. Phila. Pa.
Livingstone Engrg Co. 100 Grove St. Worcester 5, Mass.

BOILERS, ENGINE-EXHAUST, WASTE-HEAT

Babcock & Wilcox Co. 85 Liberty St. New York 6, N. Y.
Bigelow Co. Lloyd & River Sts. New Haven 13, Conn.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16, N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Davis Engrg Corp. 1064 E Grand St. Elizabeth 4, N. J.
Doyle & Roth Mfg Co. 136-50 24th St. Brooklyn, N. Y.
Foster Wheeler Corp. 165 Broadway. New York 6, N. Y.
Hapman-Dutton Co. 622 Gibson St. Kalamazoo 11, Mich.
Kennedy Van Saun Mfg & Engrg Co. 2 Park Ave. N. Y. 16, N. Y.
Maxim Silencer Co. 85 Homestead Ave. Hartford 1, Conn.
Murray Iron Works Co. 1106 Washington St. Burlington, Iowa
Petro-Chem Develoment Co. 120 E 41st St. New York 17, N. Y.
Sims Co. 1402 E 18th St. Erie, Pa.
Union Iron Works. 1420 Cascade St. Erie, Pa.

For additional information about manufacturers' products advertised in this issue see advertisers' index pages 232-233

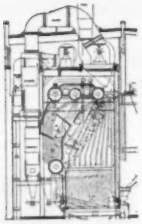
MURRAY IRON WORKS COMPANY

Burlington, Iowa, U. S. A.

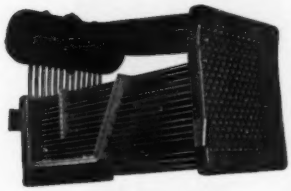
Steam Turbines, Boilers, Iron Castings

BOILERS

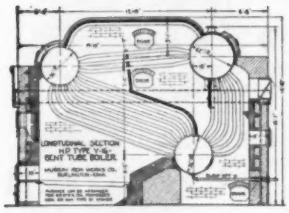
Longitudinal Drum Type "A" Boiler



4-Drum Bent Tube Steam Generator



Cross Drum Box Header



3-Drum Lowhead

Horizontal Return Tubular Boiler

For power and heating plants, Murray offers a wide selection of boilers. Water tube boilers are built in both straight and bent tube types. In the straight tube type, the Murray Type "A" longitudinal drum boiler has been eminently successful. Also available is the cross drum straight tube type.

Bent tube boilers are built with two, three or four drums. The four-drum bent tube type is designed primarily for the larger power installations, and may be furnished with double flow circulation. The three-drum bent tube is most commonly used in the low head construction, but also is designed for high setting. The two-drum bent tube type is used for both heating and power.

Water walls may be provided with either the straight tube or bent tube types.

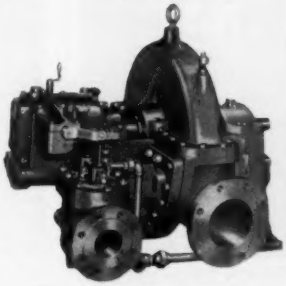
In fire tube boilers, Murray offers horizontal return tubulars, Scotch Marine, vertical, as well as an integral type of steel encased horizontal return tubular.

Murray steam turbines are quality prime movers for mechanical and electrical machinery. Types "H" and "U", single pressure stage velocity compounded, are furnished for direct drive or through Murray high-speed reduction gears for requirements from 10 to 2000 H.P., as well as for electric generators up to 200 K.W. Multi-stage impulse turbines "UV," "R," and "D" direct drive or geared, are furnished for mechanical applications up to 4000 H.P. and in turbo-generators up to 3000 K.W. A wide range of accessories is available for special requirements.

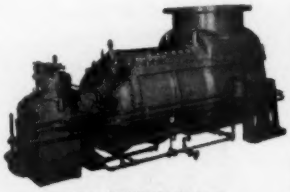
Turbo-generators of the most modern construction are available in geared combinations up to and including 1500 K.W. and in direct connected units from 500 to 3000 K.W. Rating.

Type "UV" turbines and turbo-generators may be furnished for operation on low pressure steam or as extraction, mixed pressure or extraction mixed pressure units.

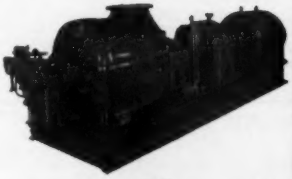
TURBINES



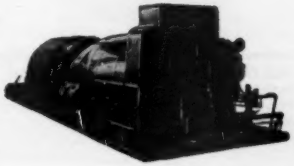
Type "H" Single Stage Turbine



Type "UV" Multi-Stage Turbine



500 K.W. Package Type Turbine Generator Set



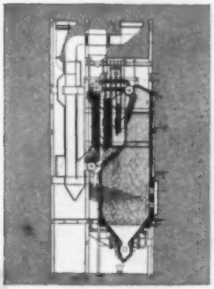
2500 K.W. Turbo-Generator

ERIE CITY IRON WORKS

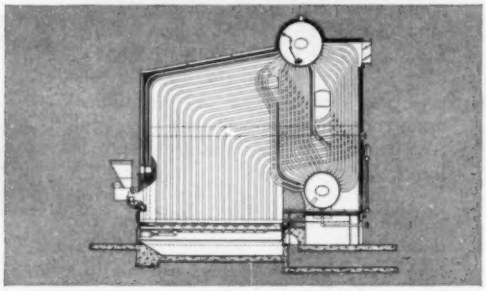
1413 East Ave., Erie, Pa., U. S. A.

Since 1840

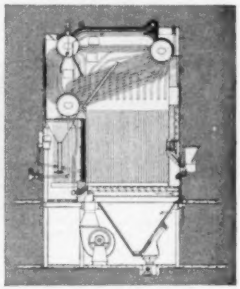
Manufacturers of a complete line of water tube and fire tube BOILERS; WATER WALLS, ECONOMIZERS, SUPERHEATERS, AIR PREHEATERS, UNIT PULVERIZERS, UNDERFEED and SPREADER STOKERS, LENTZ and HIGH SPEED ENGINES.



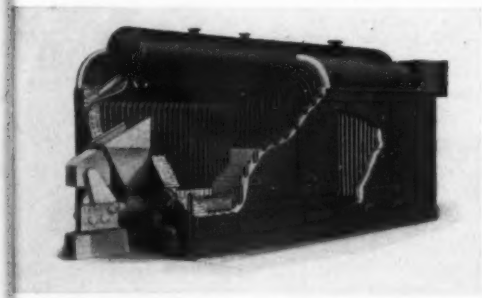
Erie City 3-drum type Steam Generators incorporating auxiliary equipment built to any commercial size and pressure. A 40 page catalog SB-30 describes these complete steam generators.



Erie City V-C 2-drum Steam Generators feature integral top, sides and front wall water cooling in a self contained steel cased unit. V-C's are available in several standardized furnace widths to meet restricted space conditions. The V-C 2-drum is a high capacity, exceptionally dry steamer. Write for Bulletin SB-37.

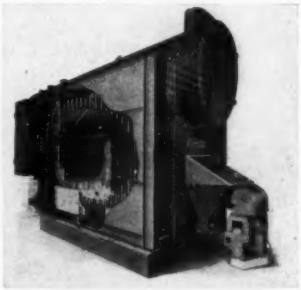


Erie City Type 3-drum boilers feature 2 1/2" tubes for more tube area per foot of furnace width. These are fast steamers with exceptionally dry steam output. Write for Bulletin SB-22A.

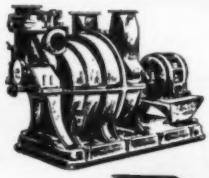


Erie City V-L Boilers in sizes to 300 h.p. are available as built-up boiler-furnace-refractory units—larger sizes for field erection. The radiant or riser tubes in the water walls are backed by tile insulation to assure lower temperatures in the outside or downcomer tubes providing definite ring flow circulation in each water wall element. For complete data write for Bulletin SB-24B.

Erie City Economics are available with integral water wall cooling of side wall refractories which permits the most efficient use of modern mechanical firing methods. This cooling method greatly extends the refractory life and permits high capacity operation. Write for Bulletin SB-21.

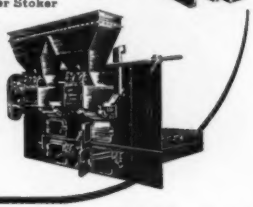


Erie City Firing Methods include full range of sizes of Unitype Pulverizers, Underfeed and Spreader Stokers. Booklets available on each method.

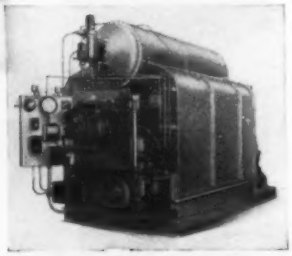


Unitype Pulverizer

Underfeed Stoker



Spreader Stoker



ERIE CITY "KEYSTONE"

STEAM GENERATOR

A compact 2-Drum Water Tube Unit, factory assembled, as shown. Burns light or heavy oils, or gas, or can burn both fuels interchangeably if desired. Requires no special foundation—no costly stack—needs only to be service connected. 13 Sizes 75 to 800 h.p. pressures from 160 p.s.i. Write for Bulletin SB-38.

H.R.T. Boilers in automatic fusion welded construction carried in stock in sizes to 300 h.p. and in pressures of 100 to 150 W.S.P. Write for Bulletin SB-32.

Erie City Welded Steel Heating Boilers carried in stock in popular sizes for all firing methods. They are designed for 15 pounds steam or 30 pounds water pressure. Write for Bulletin SB-29.

Erie City Vertical Fire Tube Boilers in riveted or Class I fusion welded types available in full range of sizes.

BOILERS, FIRE-TUBE

Alert Boiler & Mfg Co. 315 W Woodbridge St. Detroit 26, Mich.
Ames Iron Wks. Oswego, N. Y.
Baldwin - Lima - Hamilton Corp. Paschall P O, Philadelphia 42, Pa.
Bigelow Co. Lloyd & River Sts. New Haven 13, Conn.
Bros. Wm. Boiler & Mfg Co. 1057 10th Ave. S E. Minneapolis 14.
Brownell Co. 306 N Findlay St. Dayton 1, Ohio
Cleaver-Brooks Co. 326 E Keefe Ave. Milwaukee 12, Wis.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16, N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Crotty Mfg Corp. 133-15 35th Ave. Flushing, N. Y.
Cyclotherm Corp. Oswego, N. Y.
Eclipse Fuel Eng Co. 711 S Main St. Rockford, Ill.
Erie City Iron Wks. 1422 East Ave. Erie, Pa.
Farrar & Trefts Inc. 20 Milburn St. Buffalo 12, N. Y.
Godfrey-Keeler Co. 1 Hudson St. New York 13, N. Y.
Hapman-Dutton Co. 622 Gibson St. Kalamazoo 11, Mich.
Johnston Bros Inc. Ferrysburg, Mich.
Heilman Boiler Wks. 132 Linden St. Allentown, Pa.
International Boiler Wks Co. 1 Birch St. East Stroudsburg, Pa.
Kewanee Boiler Corp. Franklin St & "Q" Tracks. Kewanee, Ill.
Leffel, James & Co. 426 East St. Springfield. Ohio
Mund Boilers. Inc. 1600 N Indiana St. Los Angeles 33. Calif.
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Orr & Sembower Inc. Reading. Pa.
Petro-Chem Development Co. 120 E 41st St. New York 17, N. Y.
Stout. David. & Sons. 7016 Manchester. St Louis 17. Mo.
Struthers Wells Corp. Warren. Pa.
Titusville Iron Works Co. Titusville, Pa.
Union Iron Works. 1420 Cascade St. Erie. Pa.
U. S. Machine Corp. 320 N C St. Lebanon. Ind.
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

BOILERS, SELF-CONTAINED, PACKAGED TYPE

Alert Boiler & Mfg Co. 315 W Woodbridge St. Detroit 26. Mich.
American Hydrotherm Corp. 33-70 12th St. Long Island City 6, N. Y.
Ames Iron Wks. Oswego. N. Y.
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Beeler Corp. 4053 Harlan St. Emeryville 8. Calif.
Bigelow Co. Lloyd & River Sts. New Haven 13. Conn.
Black. Sivalls & Bryson Inc. Powgr & Light Bldg. Kansas City 6. Mo.
Bros. Wm. Boiler & Mfg Co. 1057 10th Ave SE. Minneapolis 14. Minn.
Cleaver-Brooks Co. 326 E Keefe Ave. Milwaukee 12. Wis.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16. N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Cyclotherm Corp. Oswego. N. Y.
Eclipse Fuel Engrg Co. 711 S Main St. Rockford. Ill.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor. Del.
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
Foster Wheeler Corp. 165 Broadway. New York 6. N. Y.
Godfrey-Keeler Co. 1 Hudson St. New York 13. N. Y.
Hapman-Dutton Co. 622 Gibson St. Kalamazoo 11. Mich.
Heilman Boiler Wks. 132 Linden St. Allentown. Pa.
International Boiler Wks Co. 1 Birch St. East Stroudsburg. Pa.
Johnston Bros Inc. Ferrysburg. Mich.
Leffel. James & Co. 426 East St. Springfield. Ohio
Livingstone Engrg Co. 100 Grove St. Worcester 5. Mass.
Martin. J O & C U. 637 Minna St. San Francisco 3. Calif.
Mund Boilers. Inc. 1600 N Indiana St. Los Angeles 33. Calif.
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Orr & Sembower Inc. Reading. Pa.
Petro-Chem Development Co. 120 E 41st St. New York 17. N. Y.
Preferred Utilities Mfg Corp. 1860 Broadway. New York 23. N. Y.
Steamaster Automatic Boiler Co. 5819 S Compton Ave. Los Angeles
Stout. David. & Sons. 7016 Manchester Blvd. St. Louis 17. Mo.
Struthers Wells Corp. Warren. Pa.
Superior Combustion Industries. Inc. Times Bldg. New York 18. N. Y.
Timken Detroit Axle Co. Box 56. Roosevelt Park Sta. Detroit 32
Titusville Iron Works Co. Titusville. Pa.
Union Iron Works. 1420 Cascade St. Erie. Pa.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.
York-Shipley Inc. York. Pa.

BOILERS, WASTE-HEAT

American Hydrotherm Corp. 33-70 12th St. Long Island City 6. N. Y.
American Locomotive Co. Schenectady 5. N. Y.
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Bigelow Co. Lloyd & River Sts. New Haven 13. Conn.
Bros. Wm. Boiler & Mfg Co. 1057 10th Ave. S E. Minneapolis 14. Minnesota
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16. N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Crotty Mfg Corp. 133-15 35th Ave. Flushing. N. Y.
Davis Engrg Corp. 1064 E Grand St. Elizabeth 4. N. J.
E Keeler Co. 238 West St. Williamsport 3. Pa.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor. Delaware
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
Farrar & Trefts Inc. 20 Milburn St. Buffalo 12. N. Y.
Foster Wheeler Corp. 165 Broadway. New York 6. N. Y.
Hapman-Dutton Co. 622 Gibson St. Kalamazoo 11. Mich.
Heilman Boiler Wks. 132 Linden St. Allentown. Pa.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
Maxim Silencer Co. 85 Homestead Ave. Hartford 1. Conn.
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Page Boiler Co. 815 Webster Ave. Chicago 14. Ill.
Petro-Chem Development Co. 120 E 41st St. New York 17. N. Y.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Tilco-Pin Div. Kentile Inc. 58 Second Ave. Brooklyn 15. N. Y.
Titusville Iron Works Co. Titusville. Pa.
Union Iron Works. 1420 Cascade St. Erie. Pa.
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

BOILERS, WATER-TUBE, 30,000 LB AND UNDER

American Hydrotherm Corp. 33-70 12th St. Long Island City 6. N. Y.
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Beeler Corp. 4053 Harlan St. Emeryville 8. Calif.
Bigelow Co. Lloyd & River Sts. New Haven 13. Conn.
Bros. Wm. Boiler & Mfg Co. 1057 10th Ave. S E Minneapolis 14 Minn.
Combustion Engrg-Superheater Inc 200 Madison Ave. N. Y. 16. N. Y
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Crotty Mfg Corp. 133-15 35th Ave. Flushing. N. Y.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor. Delaware
E Keeler Co. 238 West St. Williamsport 3. Pa.
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
Heilman Boiler Wks. 132 Linden St. Allentown. Pa.
International Boiler Wks Co. 1 Birch St. East Stroudsburg. Pa.
Koven. L O & Brother. Inc. 154 Ogden Ave. Jersey City 7. N. J.
Mund Brothers Inc. 1600 N Indiana St. Los Angeles 33. Calif.
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Page Boiler Co. 815 Webster Ave. Chicago 14. Ill.
Petro-Chem Development Co. 120 E 41st St. New York 17. N. Y.
Riley Stoker Corp. 9 Neponset St. Worcester. Mass.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Steamaster Automatic Boiler Co. 5819 South Compton Ave. Los Angeles 11. Calif.
Struthers Wells Corp. Warren. Pa.
Titusville Iron Works Co. Titusville. Pa.
Union Iron Works. 1420 Cascade St. Erie. Pa.
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

BOILERS, WATER-TUBE, 30,000-100,000 LB

American Hydrotherm Corp. 33-70 12th St. Long Island City 6. N. Y.
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Bigelow Co. Lloyd & River Sts. New Haven 13. Conn.
Bros. Wm. Boiler & Mfg Co. 1057 10th Ave S E. Minneapolis 14.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16. N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor. Delaware
E Keeler Co. 238 West St. Williamsport 3. Pa.
Erie City Iron Wks 1422 East Ave. Erie. Pa.
Foster Wheeler Corp. 165 Broadway. New York 6. N. Y.
Heilman Boiler Wks. 132 Linden St. Allentown. Pa.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Petro-Chem Development Co. 120 E 41st St. New York 17. N. Y.
Riley Stoker Corp. 9 Neponset St. Worcester. Mass.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Titusville Iron Works Co. Titusville. Pa.
Union Iron Works. 1420 Cascade St. Erie. Pa.
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

BOILERS, WATER-TUBE, OVER 100,000 LB

Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Bros. Wm. Boiler & Mfg Co. 1057 10th Ave S E. Minneapolis 14.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16. N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor. Delaware
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
E Keeler Co. 238 West St. Williamsport 3. Pa.
Foster Wheeler Corp. 165 Broadway. New York 6. N. Y.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Riley Stoker Corp. 9 Neponset St. Worcester. Mass.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Steamaster Automatic Boiler Co. 5819 South Compton Ave. Los Angeles 11. Calif.
Struthers Wells Corp. Warren. Pa.
Titusville Iron Works Co. Titusville. Pa.
Union Iron Works. 1420 Cascade St. Erie. Pa.
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

Look for the noun in the product listing, for example:

Boilers, Waste-Heat

not

Waste-Heat Boilers

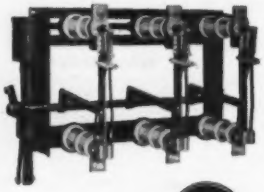
BOXES, JUNCTION

Adam. Frank Electric Co. P O Box 357. St Louis 3. Mo.
Appleton Electric Co. 1701-41 Wellington Ave. Chicago 13. Ill.
Crouse Hinds Co. Wolf & Seventh N Syracuse 1. N. Y.
Falstrom Co. 22 Falstrom Court. Passaic. N. J.
General Electric Co. Construction Materials Dept. 1285 Boston Ave. Bridgeport 2. Conn.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17. N. Y.
National Electric Products Corp. Chamber of Commerce Bldg. Pittsburgh 19. Pa.
O Z Electrical Mfg Co Inc. 262 Bond St. Brooklyn 2. N. Y.
Pyle-National Co. 1334 N Kostner Ave. Chicago 51. Ill.
Ripley Co. Factory St. Middletown. Conn.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

BREAKERS, CIRCUIT, AIR

Allis-Chalmers Mfg. Co. 952 S 70th St. Milwaukee 1. Wis.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1. N. Y.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1. Wis.
Federal Electric Products Co. Inc. 50 Paris St. Newark 5. N. J.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.

BROWN BOVERI LOAD DISCONNECT



TYPE RB

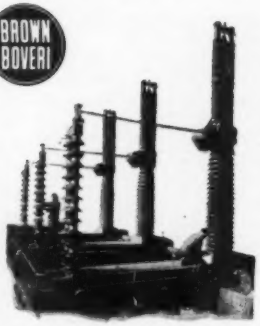
For 7.5 and 15 kv service. Will safely interrupt full rated current 500 TIMES without overhaul.

BROWN BOVERI

Also:
Full line of
indoor and outdoor

AIR BLAST BREAKERS

for all voltages, currents and interrupting ratings normally required.



BROWN BOVERI

BROWN BOVERI CORP., 19 RECTOR ST., NEW YORK 6, N. Y.

Progressive Engineers — Skilled Craftsmen — For Over 50 Years

SCHELLENS STANDARD SERIES

Turbine Buckets

Designed and produced by leading turbine and centrifugal pump engineers

The Schellens Standard Series are available to cover the entire field of one- and two-velocity stage turbines and are covered by:

2 widths
7 blade sections
2 root sections for the skirted type buckets
1 root section for the packer type buckets

This series employs the convenient shroud type of bucket throughout with but few exceptions.

Also Custom Made Buckets to Customer's Designs

Send for illustrated literature covering details.

SCHELLENS-TRUE CORP.
IVORYTON — CONN.

I-T-E Circuit Breaker Co, 19th & Hamilton Sts, Phila 30, Pa.
Roller-Smith 1756 W Market St, Bethlehem, Pa.
Square D Co, 4041 N Richards St, Milwaukee 12, Wis.
Trumbull Electric Mfg Co, 41 Woodford Ave, Plainville, Conn.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.

BREAKERS, CIRCUIT, OIL

Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee 1, Wis.
Brown Boveri Corp, 19 Rector St, New York 6, N. Y.
General Electric Co, Schenectady 5, N. Y.
Graybar Electric Co Inc, 420 Lexington Ave, New York 17, N. Y.
Pacific Electric Mfg Co, 5815 Third St, San Francisco 24, Calif.
Roller-Smith, 1756 W Market St, Bethlehem, Pa.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.

BREECHINGS

Babcock & Wilcox Co, 85 Liberty St, New York 6, N. Y.
Badger Fire Extinguisher Co, 624 Somerville Ave, Somerville, Mass.
Bergen Point Iron Wks, Foot of W 5th St, Bayonne, N. J.
Bethlehem Steel Co, Bethlehem, Pa.
Black, Sivalls & Bryson Inc, Power & Light Bldg, Kansas City 6, Mo.
Brownell Co, 306 N Findlay St, Dayton 1, Ohio
Chicago Bridge & Iron Co, 2454 McCormick Bldg, Chicago 4, Ill.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Connery Construction Co, 2nd & Luzerne Sts, Phila 40, Pa.
Falstrom Co, 22 Falstrom Court, Passaic, N. J.
Farrar & Trefts Inc, 20 Milburn St, Buffalo 12, N. Y.
General American Transportation Corp, 10 E 49 St, N. Y. 17, N. Y.
Graver Tank & Mfg Co Inc, 4809 Tod Ave, East Chicago, Ind.
Green Fuel Economizer Co Inc, 627 Main St, Beacon, N. Y.
Hicks, S D & Son Co, 1671 Hyde Park Ave, Boston 36, Mass.
Holmes, Robert, & Bros, Danville, Ill.
Keeler, E Co, 238 West St, Williamsport, Pa.
Kirk & Blum Mfg Co, 2874 Spring Grove Ave, Cincinnati 25, Ohio
Kuven, L O & Brother Inc, 154 Ogden Ave, Jersey City 7, N. J.
Littleford Bros Inc, 453 E Pearl St, Cincinnati, Ohio
Nazareth Steel Fabricators Inc, Nazareth, Pa.
Nooter Corp, 1400 S 2nd St, St Louis 4, Mo.
Quaker City Iron Wks, Aramingo Ave & Ontario St, Phila 34, Pa.
Steel Products Corp, 52 Vanderbilt Ave, New York 17, N. Y.
Stover Steel Tank & Mfg Co, 100 S Hancock St, Freeport, Ill.
Union Iron Works, 1420 Cascade St, Erie, Pa.
Wickes Boiler Co, 515 N Washington Ave, Saginaw, Mich.

BRICK, FIRE, HIGH TEMPERATURE REFRACTORY

Babcock & Wilcox Co, 85 Liberty St, New York 6, N. Y.
Bernitz Furnace Appliance Co, 89 Broad St, Boston 10, Mass.
Bottfield Refractories Co, 784 S Swanson St, Phila 47, Pa.
Carborundum Co, Perth Amboy, N. J.
Carolina Refractories Co, Hartsville, S. C.
Chicago Fire Brick Co, 1467 Elston Ave, Chicago 22, Ill.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Denver Fire Clay, P O Box 5510, Denver 17, Colo.
Green, A P, Fire Brick Co, Mexico, Mo.
Harbison-Walker Refractories Co, Farmers Bank Bldg, Pittsburgh 22, Pa.
Johns-Manville, 22 E 40th St, New York 16, N. Y.
Kellogg, M W Co, 225 Broadway, New York 7, N. Y.
Laclede Christy Co, 3600 Forbes St, Pittsburgh 13, Pa.
Mexico Refractories Co, Better Refractories Bldg, Mexico, Mo.
Mullite Refractories Co, Shelton, Conn.
Norton Co, 1 New Bond St, Worcester 6, Mass.
Plibrico Jointless Firebrick Co, 1800 Kingsbury St, Chicago 14, Ill.
Power Plant Efficiency Co, P O Box 592, Indianapolis 4, Ind.
Quigley Co Inc, 527 Fifth Ave, New York 17, N. Y.
Ramtite Co, 2549 W 18th St, Chicago 8, Ill.
Refractory & Insulation Corp, 120 Wall St, New York 5, N. Y.
Waite Gravity Lock Refractories, 111 Westminster St, Providence 3, R. I.

BRICK, INSULATING

Armstrong Cork Co, Liberty St, Lancaster, Pa.
Babcock & Wilcox Co, 85 Liberty St, New York 6, N. Y.
Carborundum Co, Perth Amboy, N. J.
Chicago Fire Brick Co, 1467 Elston Ave, Chicago 22, Ill.
Denver Fire Clay Co, P O Box 5510, Denver 17, Colo.
Green, A P, Fire Brick Co, Mexico, Mo.
Harbison-Walker Refractories Co, Farmers Bank Bldg, Pittsburgh 22, Pa.
Johns-Manville, 22 E 40th St, New York 16, N. Y.
Kellogg, M W Co, 225 Broadway, New York 7, N. Y.
Laclede Christy Co, 3600 Forbes St, Pittsburgh 13, Pa.
Mexico Refractories Co, Better Refractories Bldg, Mexico, Mo.
Mullite Refractories Co, Shelton, Conn.
Norton Co, 1 New Bond St, Worcester 6, Mass.
Plibrico Jointless Firebrick Co, 1800 Kingsbury St, Chicago 14, Ill.
Quigley Co Inc, 527 Fifth Ave, New York 17, N. Y.
Reintjes, Geo P, Co, 2517 Jefferson St, Kansas City, Mo.

BRUSHES, MOTOR, GENERATOR

Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee 1, Wis.
Hanson-Van Winkle-Munning Co, Church St, Matawan, N. J.
National Carbon Co, 80 E 42nd St, New York 17, N. Y.
Ohio Carbon Co, Inc, 12508 Berea Road, Cleveland 11, Ohio
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.

BUCKETS, HOIST

Bartlett, C O & Snow Co, 6200 Harvard Ave, Cleveland 5, Ohio
Bergen Point Iron Wks, Foot of W 5th St, Bayonne, N. J.
Hewitt-Robins Inc, 370 Lexington Ave, New York 17, N. Y.
Holmes, Robert, & Bros, Danville, Ill.
Industrial Products Co, 2923 N Fourth St, Philadelphia 33, Pa.
Link-Belt Co, 300 W Pershing Rd, Chicago 9, Ill.
Power Piping Div, Blaw-Knox Co, 1525 Pennsylvania Ave, Pittsburgh 12, Pa.
Stephens-Adamson Mfg Co, 5 Ridgeway, Aurora, Ill.

BUCKETS, TURBINE

Schellens-True Corp, Main St, Ivoryton, Conn.
Steel Improvement & Forge Co, Addison & Metta Aves, Cleveland, Ohio

BUNKERS, COAL AND ASH

Allen-Sherman-Hoff Co, 227 S 15th St, Phila 2, Pa.
Bartlett, C O & Snow Co, 6200 Harvard Ave, Cleveland 5, Ohio
Beaumont Birch Co, 1505 Race St, Phila 2, Pa.
Bergen Point Iron Wks, Foot of W 5th St, Bayonne, N. J.
Bethlehem Steel Co, Bethlehem, Pa.
Brady Conveyors Corp, 20 W Jackson Blvd, Chicago 4, Ill.
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Coppus Engrg Corp, 344 Park Ave, Worcester 2, Mass.
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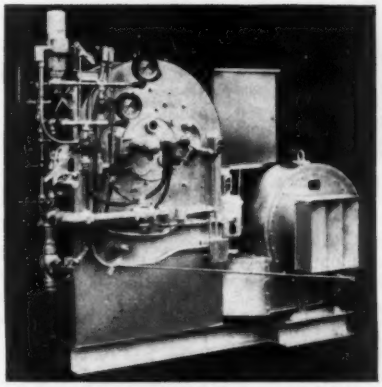

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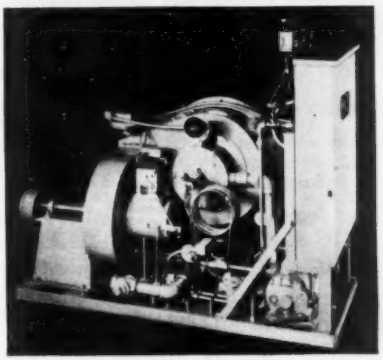

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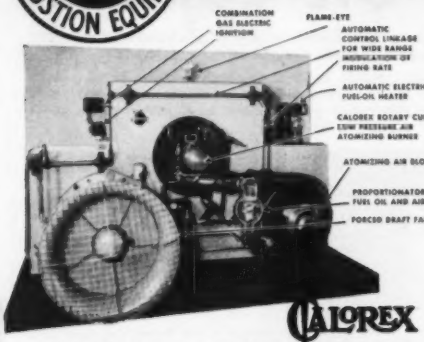

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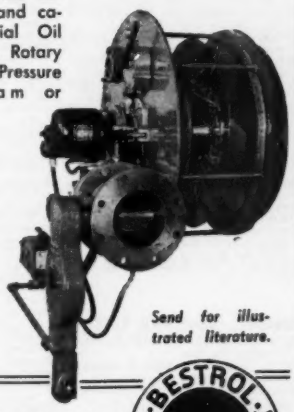

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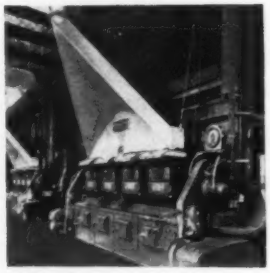

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Whitlock Mfg Co. 46 South St. Hartford 10. Conn.
Wilson Engrg Corp. 122 S Michigan Ave. Chicago. Ill.
Wolverine Tube Div. 1850 Guardian Bldg. Detroit 26. Mich.
Worthington Pump & Machy Corp. Harrison. N. J.
York Corp. York. Pa.
Young Radiator Corp. 709 S Marquette St. Racine. Wis.

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Buell Engrg Co. Inc. 70 Pine St. New York 5. N. Y.
Fly Ash Arrestor Corp. P O Box 1883. Birmingham 1. Ala.
Koppers Co. Inc. 200 Scott St. Baltimore. Md.
Nazareth Steel Fabricators Inc. Nazareth. Pa.
Research Corp. 405 Lexington Ave. New York 17. N. Y.
Sturtevant Div Westinghouse Elec Corp. Hyde Park. Boston. Mass.
Thermix Corp. Greenwich. Conn.
Western Precipitation Corp. 1016 W 9th St. Los Angeles 15. Calif.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

COLLECTORS, DUST, FLYASH, MECHANICAL

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Aerodyne Development Corp. 879 Addison Rd. Cleveland. Ohio
Aerotec Corp. Greenwich. Conn.
Allen-Sherman-Hoff Co. 227 S 15th St. Philadelphia 2. Pa.
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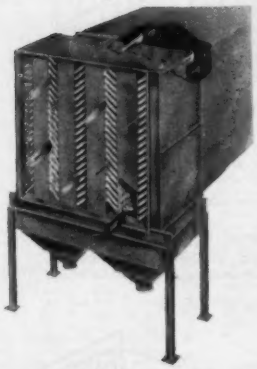
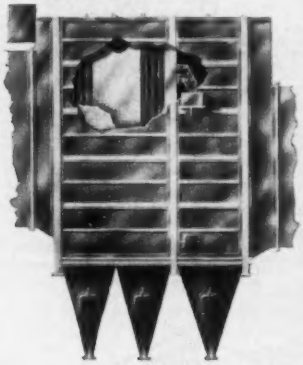
American Blower Corp. Detroit 32. Mich.

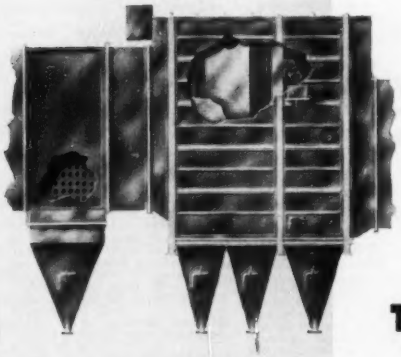
You can be sure of highest collection efficiency with AEROTEC mechanical and electrical DUST COLLECTORS



MECHANICAL COLLECTOR



ELECTRICAL PRECIPITATOR



SERIES COLLECTOR

AEROTEC MECHANICAL DUST COLLECTORS

(at left) are particularly effective on ultra-fine dusts. This high efficiency is the result of using multiple, permanent molded aluminum tubes of small diameter that provide increased centrifugal forces. The absolutely uniform tubes are factory pre-assembled into building block units that reduce erection time in the field. The blocks permit a highly flexible arrangement to suit a wide variety of space limitations. Hundreds of Aerotec installations offer on-the-job proof of the efficiency of these Mechanical Dust Collectors.

AEROTEC ELECTRICAL PRECIPITATORS

(at right) feature a unique design that reduces re-entrainment of dust particles in the gas stream during rapping. Pocket type collecting electrodes provide a dead air zone that permits dust to fall freely to the hopper when the electrodes are rapped. Highest precipitating force is developed between flat plates. Aerotec Electrical Precipitators are ideal as the secondary to Series Collectors for maximum collecting efficiency.

AEROTEC SERIES COLLECTORS

(at left) provide the ultimate in effective dust collection, since they combine the mechanical and electrical units described above. This assures you a combination that meets requirements of the most stringent dust ordinances and public relations policies. Top efficiency of Aerotec Series Collectors in use today indicates that our project engineers can supply a sound, practical answer to any dust collection problem. We suggest you get in touch with them. Call or write.

Project Engineers

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Canadian Affiliates: T. C. CHOWN, LTD., 1440 Saint Catherine St., W., Montreal 25, Quebec; 50 Abell St., Toronto 3, Ontario

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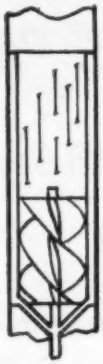
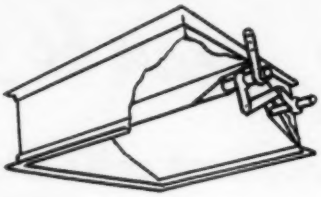
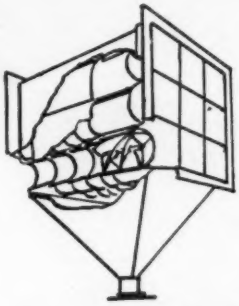


CHIMNEY TYPE FLY ASH ARRESTORS for low cost installations.

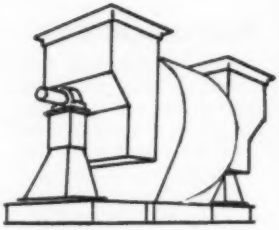


CONTROLLED RATIO DAMPERS for trouble-free operation with combustion controls.

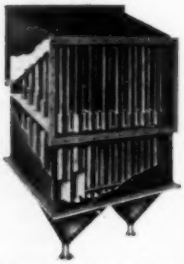


MULTI-TUBE TRUN-CONE FLY ASH ARRESTORS for dependable service and high efficiency.

STOP FLY ASH

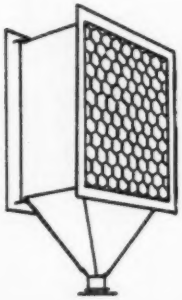


INDUCED DRAFT FANS for dependable service under severe operating conditions.

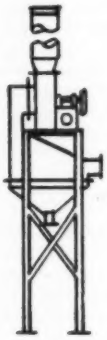


GUIDED INLET MULTIPLE CYCLONE ARRESTOR.

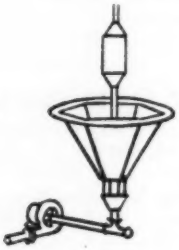
"Whirlex" Fly Ash Arrestors efficiently eliminate emission of air-borne solids from factories and industrial plants, and are made in all different types required to meet conditions involved. Our Fly Ash Arrestors efficiently handle all types of fly ash from spreader stokers, underfeed stokers, and boilers burning powdered coal, wood shavings, sawdust, chips, bagasse and other fuels.



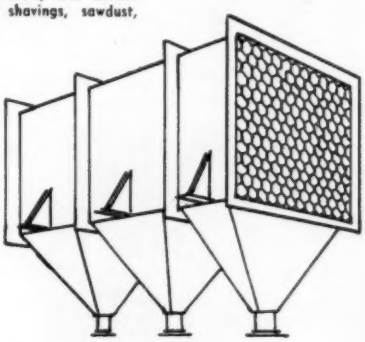
CAST IRON CELLULAR FLY ASH ARRESTORS for high efficiency with extreme compactness.



PACKAGE DESIGN FLY ASH ARRESTORS complete with I. D. fan for high efficiency and simplicity of installation.



FLY ASH REINJECTION SYSTEMS to solve the disposal problem.



"WHIRLECTRIC" FLY ASH ARRESTORS for ultimate efficiency.

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Horn, A C Co Inc, Tenth St. & 44th Ave, Long Island City 1, N. Y.
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Dixon, Joseph Crucible Co, 167 Wayne St, Jersey City 3, N. J.
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Flexrock Co, 3677 Filbert St, Phila 4, Pa.
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Greene, Tweed & Co, 322 Elm Ave, North Wales, Pa.
Grinnell Co Inc, 260 W Exchange St, Providence 1, R. I.
Horn, A C Co Inc, Tenth St & 44th Ave, Long Island City 1, N. Y.
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Kano Laboratories, 1000 S Thompson Lane, Nashville 11, Tenn.
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Buromin Co, Hagan Bldg, Pittsburgh 30, Pa.
Cities Service Oil Co, 70 Pine St, New York 5, N. Y.
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Drew, E F, & Co Inc, 15 E 26th St, New York 10, N. Y.
Electromatic Water Treatment Inc, 475 Fifth Ave, New York 17, N. Y.
Esso Standard Oil Co, 15 W 51st St, New York 19, N. Y.
Feedwaters, Inc, 140 Cedar St, New York 6, N. Y.
Flintkote Co, 30 Rockefeller Plaza, New York 20, N. Y.
Freedom-Valvoline Oil Co, Freedom, Pa.
Goodall Rubber Co, Whitehead Rd, Trenton 4, N. J.
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Kelite Products Inc, Box 2917 Terminal Annex, Los Angeles 54, Calif.
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Magnus Chemical Co Inc, South Ave, Garwood, N. J.
Mortell J W Co, Kankakee, Ill.
Oakite Products, Inc, 23Z Thames St, New York 6, N. Y.
Pabco Products, Inc, 475 Brannan St, San Francisco 19, Calif.
Pennsylvania Refining Co, 2686 Lisbon Rd, Cleveland 4, Ohio
Pennsylvania Salt Mfg Co, 1000 Widener Bldg, Phila., Pa.
Perolin Co Inc, 10 E 40th St, New York 16, N. Y.
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Speco Co, 7308 Associate Ave, Cleveland 9, Ohio
Standard Chemicals Inc, 36 Summer St, Natick, Mass.
Standard Oil Co, Indiana, 910 S Michigan Ave, Chicago 80, Ill.
Stonhard Co, 1306 Spring Garden St, Phila 23, Pa.
Sudbury Laboratory, South Sudbury, Mass.
Swan-Finch Oil Corp, 30 Rockefeller Plaza, New York 20, N. Y.
Texas Co, 135 E 42nd St, New York 17, N. Y.
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Tremco Mfg Co, 8701 Kinsman Rd, Cleveland 4, Ohio
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American K A T Corp, Garwood, N. J.
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Betz, W H & L D, Gillingham & Worth Sts, Philadelphia 24, Pa.
Bird-Archer Co, 400 Madison Ave, New York 17, N. Y.
Brooks Chemicals Inc, 3304 E 87 St, Cleveland, Ohio
Buromin Co, Hagan Bldg, Pittsburgh 30, Pa.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Continental Asbestos & Refining Corp, 1 Madison Ave, N. Y. 10, N. Y.
Dearborn Chemical Co, Merchandise Mart Plaza, Chicago 54, Ill.
Dominion Chemical Co Inc, 11 W 42nd St, Dept A, N. Y. 18, N. Y.
Drew, E F, & Co Inc, 15 E 26th St, New York 10, N. Y.
du Pont de Nemours, E I & Co, Inc, Wilmington 98, Del.
Electromatic Water Treatment Inc, 475 Fifth Ave, New York 17, N. Y.
Elgin Softener Corp, 130 N Grove Ave, Elgin, Ill.
Feedwaters, Inc, 140 Cedar St, New York 6, N. Y.
Freedom-Valvoline Oil Co, Freedom, Pa.
Haering, D W & Co, P O Box 6037, Harlandale Sta, San Antonio, Texas
Houghton, E F & Co, 303 W Lehigh Ave, Phila 33, Pa.
Kano Laboratories, 1000 S Thompson Lane, Nashville 11, Tenn.
Kelite Prod Inc, Box 2917, Terminal Annex, Los Angeles 54, Calif.
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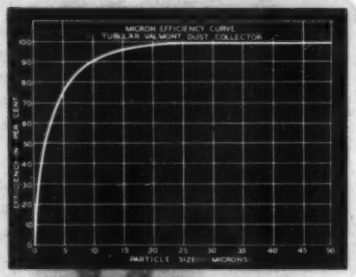
THE VALMONT TYPE S COLLECTOR

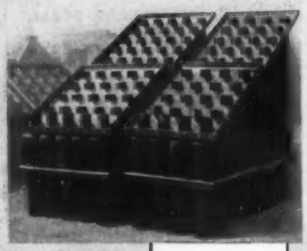
CATALOG DIGEST

The following information is taken from the New Bulletin on P-D Valmont Type S Collector. For Complete Bulletin containing dimension tables, sizes, nomographs and suggested installation plans, write our Project and Sales Engineers.

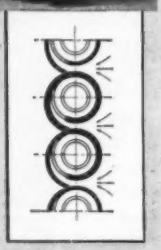


P-D EFFICIENCY CURVE

VALMONT TYPE S TUBES SHOWING FLOW OF GASES AND INLET



HORIZONTAL TYPE TUBE SHEET SECTIONS KNOWN AS "UNI-BLOCS"



METHOD OF NESTING TUBES—REDUCES TURBULENCE . . . SAVES SPACE

HIGH EFFICIENCY—The outstanding contribution to higher efficiency in the P-D Valmont Type S is the inlet slot design. A patented development of Prat-Daniel, this inlet is high and narrow, reducing the radial distance of dust-travel. To explain its effect on dust collection, we quote from Cyclone Dust Collector Design, by Melvin W. First, Paper No. 49-A-127, presented at the Annual Meeting of the American Society of Mechanical Engineers, Nov. 27—Dec. 2, 1949, page 14.

> "Entry width is an important variable in cyclone efficiency, as it controls the stream width. This, in turn, directly controls the radial distance particles must traverse to reach the cyclone wall and be separated by centrifugal force. The smaller the radial distance to be traversed, the lower the tangential velocity needed (less energy loss) and the smaller the particle that can be successfully separated for a given flow rate."

LONG LIFE—Extensive tests were made to determine the wear factor. All types of abrasive dusts were run at accelerated speeds, against various metals simultaneously and steel proved to be the most resistant to erosion.

Another long life factor is the lower velocity required due to the small tube diameter. It is a well-known fact that reduction of tube diameter produces higher centrifugal force. Thus, efficiencies are maintained at the lower load ranges.

MASS PRODUCTION METHODS—The P-D method of "uni-bloc" construction permits manufacture and assembly of sub-sections at the factory. These are shipped to the field and easily erected, either vertically or horizontally, to fit the layout. Savings in cost of erection are thus realized yet the collector is "tailor assembled" to fit the installation requirements.

SMALL SPACE FACTOR—Because of close nesting of tubes possible in P-D Valmont Type S Collectors, the space required for this apparatus is much less than conventional collectors. In many cases, P-D units have been fitted into spaces that could accommodate no other type.

The Thermix Corporation, our Sales and Project Engineers are specialists in the art of dust collection. Consult them about your dust problems.

Project and Sales Engineers

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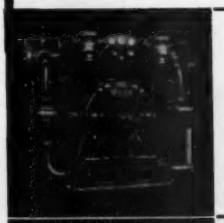
No matter how small or large your air power needs may be, there's a Joy Compressor designed and built to give you the utmost in efficient, economical operation. From the sturdy Type K to the mighty WN-114, every compressor meets exacting Joy standards of precision manufacturing.



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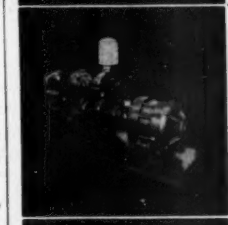

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TYPE K—Single and two stage, single acting, air-cooled type. Available in 13 models ¼ to 15 H.P. with a capacity range of 1.4 to 65.0 CFM and pressures from 100 to 300 psi., dependent upon receiver rating.

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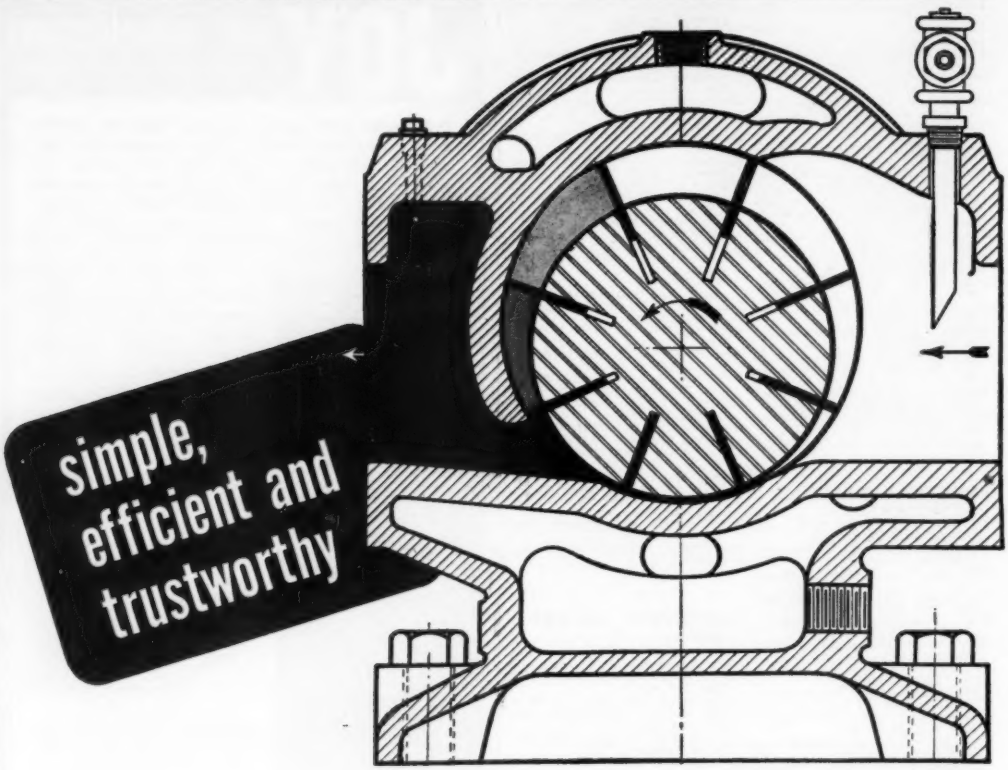

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For compressing gas, no reciprocating compressor can compare in simplicity and operation with a rotary.

PRINCIPLE IS SIMPLE

An eccentrically mounted, accurately machined rotor, with integral shaft, is supported on roller bearings in each of the heads. The eccentric rotor mounting leaves a crescent-shaped space, which is divided into compartments by wear-compensating blades. These slide freely in milled slots in the rotor, and are held, pressure tight, against the cylinder solely by centrifugal force. These compartments vary from minimum to maximum on the suction side, and from maximum to minimum on the compression half of the revolution. Properly designed blades, and a wide seal between rotor and bottom of cylinder, assure high and **maintained** volumetric efficiency; the multiple blades minimize pressure differences between compartments and contribute to maximum output with minimum wear.

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For further information on Fuller Rotary Compressors that will do a better job for you, write for Bulletin C-5.

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THEY ARE USED FOR THE CONTROL OF TEMPERATURE, PRESSURE, LIQUID LEVEL AND MECHANICAL OPERATIONS.

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WHY CONSIDER LESS WHEN YOU CAN GET SO MUCH MORE

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COMBUSTION CONTROL SYSTEMS

BAILEY METERS

BAILEY AIR-OPERATED COMBUSTION CONTROL

Bailey Air-Operated Combustion Control installed on your boiler can give you great savings. Some users have reported fuel and maintenance savings in excess of the control system cost—within a few months after its installation. Others credit it with savings resulting from more uniform steam pressure, fewer outages, and increased operating safety.

TAILORED TO YOUR PLANT

Every Bailey Combustion Control System is engineered to the specific conditions under which it must operate. Like your power plant, it fits the job. Combustion, feed water, steam temperature, heater levels, pump speed and other factors may be co-ordinated to deliver maximum power at minimum cost.

Bailey Engineers with a wealth of fuel burning experience are available to assist in the design and application of the control system required by your installation.

Write for Bulletin No. 102-E

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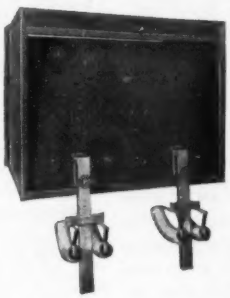

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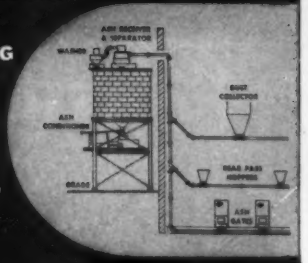

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Shingle Leather Co. 1300 Walnut St. Camden. N. J.
Sprout. Waldron & Co. Muncy. Pa.
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.
Syntron Co. 492 Lexington. Homer City. Pa.
Union Chain & Mfg Co. Edgewater Ave. Sandusky. Ohio
Warren Brothers Roads Co. 38 Memorial Dr. Cambridge 42. Mass.

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Ingersoll-Rand Co. 11 Broadway. New York 4. N. Y.
Lummus Co. 385 Madison Ave. New York 17. N. Y.
Murray. D J. Mfg Co. 1024 Third St. Wausau. Wis.
Niagara Blower Co. 405 Lexington Ave. New York 17. N. Y.
Nooter Corp. 1400 S 2nd St. St Louis 4. Mo.
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Marley Co. Inc. 3001 Fairfax Rd. Kansas City 15. Kans.
Murray. D J. Mfg Co. 1024 Third St. Wausau. Wis.
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Jones, W A Foundry & Machine Co, 4401 Roosevelt Rd, Chicago 24, Ill.
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Union Chain & Mfg Co, Edgewater Ave, Sandusky, Ohio
Waldron, John, Corp, Box 791, New Brunswick, N. J.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
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Zurn, J A, Mfg Co, 1801 Pittsburgh Ave, Erie, Pa.

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Goodall Rubber Co, Whitehead Rd, Trenton 4, N. J.
Goodrich, B F Co, Akron, Ohio
Link-Belt Co, 2045 W Hunting Park Ave, Philadelphia 40, Pa.
Owatonna Tool Co, 373 Cedar St, Owatonna, Minn.
Sperry Products Inc, Danbury, Conn.
Twin Disc Clutch Co, 1328 Racine St, Racine, Wis.
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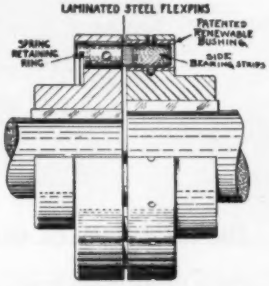

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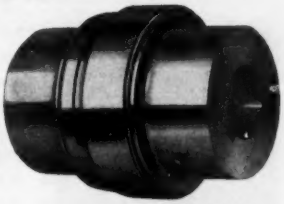

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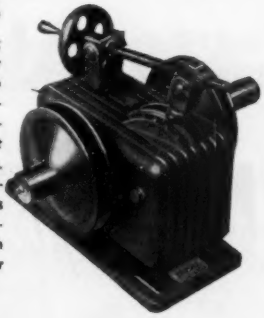

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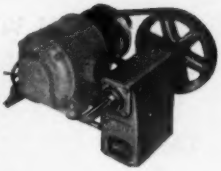

• Several sizes available from fractional to 8 HP. Facilitate instant speed change. Enable operator to change speed of machine for changes in temperature, density of stock. Easily installed on old or new machines. Ratios to 3:1.

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LOVEJOY FLEXIBLE COUPLING CO.

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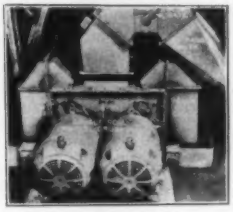
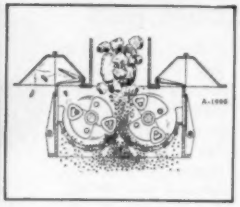
Double-Rotor KNITTEL Crusher

Crushes Wet Coal *without* Clogging





S-A KNITTEL ring-type crusher with two rotors eliminates breaker plates . . . crushes wet coal without clogging . . . maintains rated capacity. Write for crusher bulletin 350.

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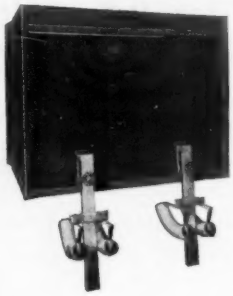

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Filtrol Corp. 727 W Seventh St. Los Angeles 17, Calif.
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Pittsburgh Lectrodryer Corp. 330 32nd St. Pittsburgh 30, Pa.
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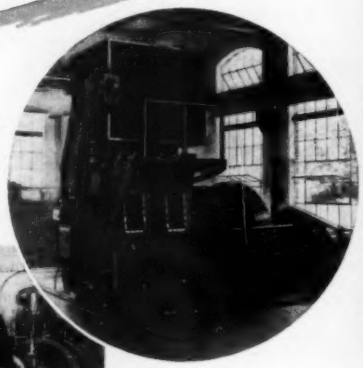

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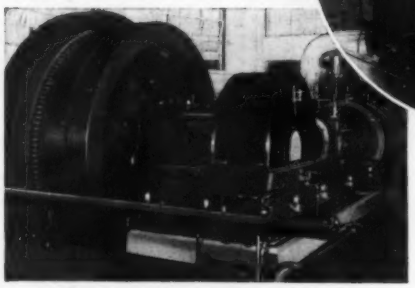

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Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.

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American Locomotive Co. Schenectady 5, N. Y.
Bell & Gossett Co. 8200 N Austin Ave. Morton Grove, Ill.
Buffalo Forge Co. 488 Broadway, Buffalo 5, N. Y.
Bush Mfg Co. 177 South St. West Hartford 10, Conn.
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Heilman Boiler Works. 132 Linden St. Allentown, Pa.
Henszey Co. 202½ Water St. Watertown, Wis.
Koppers Co. Inc. 200 Scott St. Baltimore, Md.
Lummus Co. 385 Madison Ave. New York 17, N. Y.
McQuay Inc. 1600 Broadway St N E. Minneapolis 13, Minn.
Maxim Silencer Co. 85 Homestead Ave. Hartford 1, Conn.
Nooter Corp. 1400 S 2nd St. St Louis 4, Mo.
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Surface Combustion Corp. 2375 Dorr St. Toledo 1, Ohio
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Young Radiator Co. 709 S Marquette St. Racine, Wisc.

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Babcock & Wilcox Co. 85 Liberty St. New York 6, N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Crane Packing Co. 1630 Cuyler Ave. Chicago 13, Ill.
Henderer's Sons, A L, Co. 625 Maryland Ave. Wilmington, Del.
Key Co. Box 494, East St. Louis, Ill.
Murray, A B, Co Inc. 608 Green Lane, Elizabeth, N. J.
Wiedeke, Gustav, Co. 1833 Richard St. Dayton 10, Ohio
Wilson-Dudgeon Div. Thomas C Wilson Inc. 21-11 44th Ave. Long Island City 1, N. Y.

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American Blower Corp. Detroit 32, Mich.
Arex Co. 333 N Michigan Ave. Chicago 1, Ill.
Binks Mfg Co. 3114-40 Carroll Ave. Chicago 12, Ill.
Buffalo Forge Co. 488 Broadway, Buffalo 5, N. Y.
Burt Mfg Co. 47 E South St. Akron 11, Ohio
Campbell Heating, E K Co. 1809 Manchester Ave. Kansas City, Mo.
Chelsea Fan & Blower Co. Inc. 639 South Ave. Plainfield, N. J.
Clarage Fan Co. North & Porter Sts. Kalamazoo 16, Mich.
Coppus Engrg Corp. 344 Park Ave. Worcester 2, Mass.
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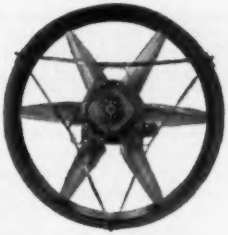
For general or specific ventilation, man-cooling, or parts-cooling—to increase personnel efficiency and decrease lost time in cooling and drying hot parts. Portable. Direction of blast adjustable. Explosion-proof motor, metal conduit and starter can be supplied. Conforms to state safety regulations.

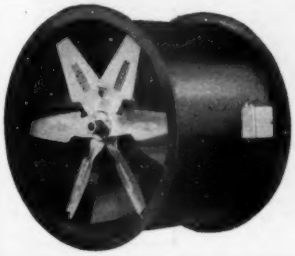


DYNAFLOW UNITS 2-4-6 BLADE TYPES

Six Blade model illustrated. For exhausting or blowing against high static pressures. For general ventilation or specific processes where fumes are present. Sizes: 16 to 36 in. dia. Capacities: 1240 to 26000 c.f.m. Two and four blade models for applications at lower static pressures.

EXTENSION ARM DYNAFLOW FOR "HOT" OR "EXPLOSIVE" GASES

For exhausting explosive gases or fumes . . . For circulating "hot" gases up to 350°F where temperature is too high to permit use of standard or even special motors. Used in heat exchangers—"sweater" ovens, etc. Fans from 16 to 36 in. diameters.



DUCTYPE UNITS
Direct Drive or Belt Drive

Direct drive model shown; also supplied with belt drive for high temperatures or corrosive air and gas handling. Designed for bolting in any duct run at any point or at either end. Sizes 16 to 36 in. fans.

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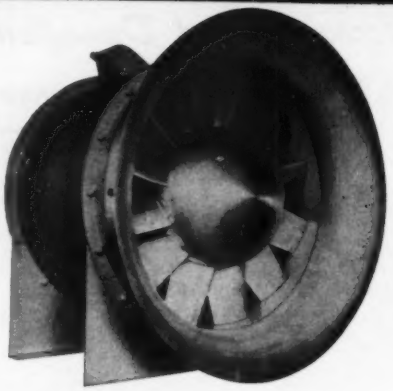
JOY INDUSTRIAL FANS

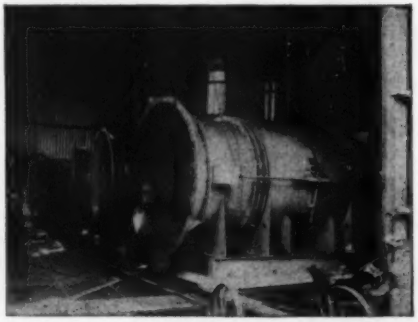
A CAPACITY FOR EVERY INDUSTRIAL REQUIREMENT



Series 1000 AXIVANE* Fans

Joy Series 1000 Fans constitute the world's most complete line of adjustable-blade, vane-axial fans. In addition to this series, Joy can provide fans of any size to special order. The 124 models in the Series 1000 line provide capacities ranging up to 100,000 C.F.M. at pressures up to 9.6" W.G. They are suitable for both high and low pressure duties.

Adjustable blades are standard equipment on all Series 1000 Fans. The factory blade setting can be quickly changed to provide either a change in volume or a wide pressure range for any constant volume. Adjustable blades permit on-the-job correction for unpredictable duct resistance or poorly installed duct work. Joy AXIVANE* Fans will save power where air demands vary since the blades can be turned to the most efficient setting for any particular duty.



Each of these especially-built Joy AXIVANE Fans passes 50,000 C.F.M. at 75" W.G. In this installation, the compact design resulted in a building one story shorter than would have been required for centrifugal fans of equal capacity.*

*Trademark Registered

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Hanson-Van Winkle-Munning Co, Church St, Matawan, N. J.
Hartzell Propeller Fan Co, Downing St, Piqua, Ohio
Hellman Boiler Works, 132 Linden St, Allentown, Pa.
International Engrg Inc, P O Box 973, Dayton 1, Ohio
Kennedy Van Saun Mfg & Engrg Corp, 2 Park Ave, N. Y. 16, N. Y.
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Murray, D J, Mfg Co, 1024 Third St, Wausau, Wis.
Newcomb-Detroit Co, 5741 Russell St, Detroit 11, Mich.
Ripley Co, Factory St, Middletown, Conn.
Robbins & Myers Inc, 1345 Lagonda Ave, Springfield, Ohio
South Bend Air Products Inc, 322 E Colfax Ave, South Bend 22, Ind.
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Sturtevant, Div Westinghouse Elec Corp, Hyde Park, Boston, Mass.
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U. S. Air Conditioning Corp, Como Ave S E at 33rd, Minneapolis 14, Minn.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
Wing, L J, Mfg Co, Linden, N. J.

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Garden City Fan Co, 332 S Michigan Ave, Chicago 4, Ill.
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Green Fuel Economizer Co Inc, 627 Main St, Beacon, N. Y.
Hartzell Propeller Fan Co, Downing St, Piqua, Ohio
Hellman Boiler Works, 132 Linden St, Allentown, Pa.
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Wing, L J, Mfg Co, Linden, N. J.

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Buffalo Forge Co, 488 Broadway, Buffalo 5, N. Y.
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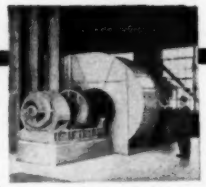
Campbell Heating, E K Co, 1809 Manchester Ave, Kansas City, Mo.
Chelsea Fan & Blower Co, Inc, 639 South Ave, Plainfield, N. J.
Clarage Fan Co, North & Porter Sts, Kalamazoo 16, Mich.
Coppus Engrg Corp, 344 Park Ave, Worcester 2, Mass.

"Buffalo" DRAFT FANS For Long, Dependable Service



FORCED DRAFT

"Buffalo" Forced Draft Fans offer high efficiency over a wide range of capacities delivering as rated, even when fuel bed is unusually heavy. Non-overloading. Rugged construction throughout for continuous operation with minimum attention. WRITE FOR BULLETIN 3750.

INDUCED DRAFT

Modified radial double curved blades give high efficiency and extra heavy construction gives these fans extra long life on the job. Housings are designed for quick inspection of all parts. Non-overloading power characteristic and rising pressure characteristic assure stable performance under varying boiler conditions. WRITE FOR BULLETIN 3750.

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Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Hartzell Propeller Fan Co. Downing St. Piqua. Ohio
International Engrg Inc. P O Box 973. Dayton 1. Ohio
Jeffrey Mfg Co. 932 N Fourth St. Columbus 16. Ohio
Joy Mfg Co. Dept 5. Oliver Bldg. Pittsburgh 22. Pa.
Koppers Co. Inc. 200 Scott St. Baltimore. Md.
Moore Co. Marceline. Mo.
Nelson. Herman. Div American Air Filter Co. 1624 3rd Ave. Moline. Ill.
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South Bend Air Products. Inc. 322 E Colfax Ave. South Bend 22. Ind.
Trane Co. LaCrosse. Wis.
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Water Cooling Equip Corp. New Hampshire & Webster Rd. St Louis 23. Mo.
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Fuller Co. 120 Bridge St. Catasauqua. Pa.
Gifford-Wood Co. Hudson. N. Y.
Graver Water Conditioning Co. 216 W 14th St. New York 11. N. Y.
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Hapman-Dutton Co. 622 Gibson St. Kalamazoo 11. Mich.
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Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. New York 16. N. Y.
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Graver Water Conditioning Co. 216 W 14th St. New York 11. N. Y.
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Madden. P E & Co. 352 W Walton St. Chicago 10. Ill.
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Permutit Co. 330 W 42nd St. New York 18. N. Y.
Perolin Co. Inc. 10 E 40th St. New York 16. N. Y.
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Suhm Co. 4701 W Electric Ave. Milwaukee 14. Wis.
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Cleco Div Reed Roller Bit Co. 5125 Clinton Drive. Houston 20. Texas
Coppus Engrg Corp. 344 Park Ave. Worcester 2. Mass.
Cuno Engrg Corp. 80 S Vine St. Meriden. Conn.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
DeVilbiss Co. 300 Phillips Ave. Toledo 1. Ohio
Dollinger Corp. 11 Center Park. Rochester 4. N. Y.
Drico Industrial Corp. 550 W 35th St. New York 6. N. Y.
Felters Co. 210 South St. Boston 11. Mass.
Fisher Governor Co. Marshalltown. Iowa
Fram Corp. 55 Pawtucket Ave. Providence 16. R. I.
Goodyer Industries. 224 S Michigan Ave. Chicago 4. Ill.
Gray Co Inc. 60 11th Ave S E. Minneapolis 13. Minn.
Greer Hydraulics Inc. 454 18th St. Brooklyn. N. Y.
Jenkins Conveyors Co. 614 Central Ave. East Orange. N. J.
Kaye & MacDonald Inc. 11-15 Central Ave. West Orange. N. J.
Lincoln Engrg Co. 5701 Natural Bridge Ave. St. Louis 20. Mo.
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Norwalk Valve Co. 33 Railroad Ave. South Norwalk. Conn.
Owens - Corning Fiberglas Corp. Wayne Bldg. Toledo 1. Ohio
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Research Products Co. Filter Div. 1015 E Washington Ave. Madison 3. Wis.
Sparkler Mfg Co. 276 Lake St. Mundelein. Ill.
Strong. Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13. Ohio
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For Quiet, Economical
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LIMIT-LOAD FANS

Designed to move large volumes of air for straight ventilation and air conditioning work. Medium speed, double curved blade design with non-overloading characteristic means high delivery at low noise levels and efficient use of driving power. Wide range of sizes, all drives and arrangements. Ask for BULLETIN 3675.

AXIAL FLOW FANS

Light, compact, efficient fans for duct-mounted service in ventilation and air conditioning. Improved blade design and straight-line delivery offer users extremely quiet, economical service. Non-overloading. Belted or direct motor drive, in wide range of sizes for work against ¼" to 1½" static. Full details in BULLETIN 3533-C.

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Blackburn-Smith Div, 95 River St, Hoboken, N. J.
Bowser Inc, Fort Wayne 2, Ind.
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Burt Mfg Co, 47 E South St, Akron 11, Ohio
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Cuno Engrg Corp, 80 S Vine St, Meriden, Conn.
Dollinger Corp, 11 Center Park, Rochester 4, N. Y.
Drico Industrial Corp, 559 W 35th St, New York 6, N. Y.
Felters Co, 210 South St, Boston 11, Mass.
Fisher Governor Co, Marshalltown, Iowa
Fram Corp, 55 Pawtucket Ave, Providence 16, R. I.
General Electric Co, Schenectady 5, N. Y.
Greer Hydraulics Inc, 454 18th St, Brooklyn, N. Y.
Hauck Mfg Co, 136 10th St, Brooklyn 15, N. Y.
Hendrick Mfg Co, P O Box 497, Carbondale, Pa.
Hilliard Corp, 120 W 4th St, Elmira, N. Y.
Honan-Crane Corp, 1200 6th St, Lebanon, Ind.
Johns-Manville, 22 East 40th St, New York 16, N. Y.
Kaye & McDonald Inc, 11-15 Central Ave, West Orange, N. J.
Lincoln Engrg Co, 5701 Natural Bridge Ave, St. Louis 20, Mo.
Nugent, Wm W, & Co Inc, 402 N Hermitage Ave, Chicago 22, Ill.
Permutit Co, 330 W 42nd St, New York 18, N. Y.
Pick Mfg Co, West Bend, Wis.
Purolator Products Inc, 970 New Brunswick Ave, Rahway, N. J.
Refinite Corp, Box 1312, Omaha, Neb.
Sparkler Mfg Co, 276 Lake St, Mundelein, Ill.
U. S. Hoffman Machinery Corp, 105 4th Ave, New York, N. Y.
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American Well Wks, 100 N Broadway, Aurora, Ill.
Belco Industrial Equip Div Inc, 52 Iowa Ave, Paterson 3, N. J.
Blackburn-Smith Div, 95 River St, Hoboken, N. J.
Bowser Inc, Fort Wayne 2, Ind.
Carborundum Co, Perth Amboy, N. J.
Cochrane Corp, 17th St & Allegheny Ave, Philadelphia 32, Pa.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Cuno Engrg Corp, 80 S Vine St, Meriden, Conn.
Dollinger Corp, 11 Center Park, Rochester 4, N. Y.
Drico Industrial Corp, 559 W 35th St, New York 6, N. Y.
Eddington Metal Specialty Co, P O Box K, Eddington, Pa.
Elgin Softener Corp, 130 N Grove Ave, Elgin, Ill.
Elliott Co, Jeannette, Pa.
Felters Co, 210 South St, Boston 11, Mass.
Fram Corp, 55 Pawtucket Ave, Providence 16, R. I.
General Filter Co, Box 111, Ames, Iowa
Graver Water Conditioning Co, 216 W 14th St, New York 11, N. Y.
Gray Co, 60 11th Ave SE, Minneapolis 14, Minn.
Hardinge Co Inc, 240 Arch St, York, Pa.
Hendrick Mfg Co, P O Box 497, Carbondale, Pa.
Illinois Water Treatment Co, 883 Cedar St, Rockford, Ill.
Infilco Inc, 2750 S 12th Ave, Tucson, Ariz.
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Lawson Products Corp, 70 Pine St, New York 5, N. Y.
McKays Co, 473 Cleveland Ave N, St Paul 4, Minn.
Nugent, Wm W, & Co, Inc, 402 N Hermitage Ave, Chicago 22, Ill.
Permutit Co, 330 W 42nd St, New York 18, N. Y.
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Clow, James B. & Sons, 201-299 N Talman Ave, Chicago 12, Ill.
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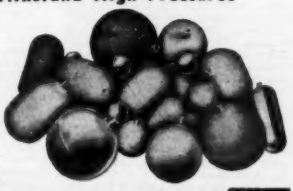

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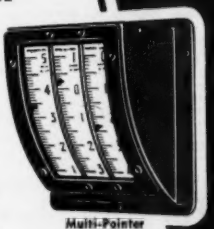

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Sticht. Herman H Co. 27 Park Pl. New York 7. N. Y.
Tagliabue. C J Mfg Co. 614 Frelinghuysen Ave. Newark 5. N. J.
Taylor Instrument Cos. 95 Ames St. Rochester 1. N. Y.
Uehling Instrument Co. 473 Getty Ave. Paterson 3. N. J.
U S Gauge Div. American Machine & Metals Inc. Sellersville. Pa.
Wallace & Tiernan. 1 Main St. Belleville 9. N. J.
Weksler Thermometer Corp. 52 W Houston St. New York 12. N. Y.
Williams & Hussey Machine Corp. Wilton. N. H.

GALVANOMETERS

Associated Research Inc. 3758 W Belmont Ave. Chicago 18. Ill.
Biddle. James G. Co. 1316 Arch St. Philadelphia 7. Pa.
Cambridge Instrument Co Inc. 3007 Grand Central Terminal. New York 17. N. Y.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17. N. Y.
Leeds & Northrup Co. 4970 Stenton Ave. Philadelphia 44. Pa.
Simpson Electric Co. 5200 W Kinzie St. Chicago 44. Ill.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.

GASKETS, ASBESTOS

Akron Metallic Gasket Co. 150-164 N Union St. Akron. Ohio
Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Belmont Packing & Rubber Co. Butler & Sepviva Sts. Phila. Pa.
Chesterton. A W Co. 6 Ashland St. Everett 49. Mass.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19. Ill.
Collins Packing Co. Inc. 401 N Broad St. Philadelphia 8. Pa.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Crane Packing Co. 1830 Cuyler Ave. Chicago 13. Ill.
Darcold Co. Inc. 145 Sixth Ave. New York 13. N. Y.
Durabla Mfg Co. 114 Liberty St. New York 6. N. Y.
Ehret Magnesia Mfg Co. Valley Forge. Pa.
Eureka Packing Co. 294-296 46th St. Brooklyn 20. N. Y.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7. Ill.
Fitzgerald Mfg Co. 691 Main St. Torrington. Conn.
Flexitallic Gasket Co. 8th & Bailey Sts. Camden 2. N. J.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Greene. Tweed & Co. 322 Elm Ave. North Wales. Pa.
Hollow Center Packing Co. 6523 Euclid Ave. Cleveland 3. Ohio
Johns-Manville. 22 East 40th St. New York 16. N. Y.
Keasbey & Mattison Co. Butler Ave. Ambler. Pa.
Klingerit Inc. 16 Hudson St. New York 13. N. Y.
Linear Inc. State Rd & Levick St. Tacony. Phila 35. Pa.
Marlo Co. Inc. 434 Broadway. New York 13. N. Y.
Murray. A B. Co Inc. 608 Green Lane. Elizabeth. N. J.
New Jersey Asbestos Co. 1 Water St. New York. N. Y.
New York Belting & Packing Co. 1 Market St. Passaic. N. J.
Pilot Packing Co Inc. P O Box 748. Sea Cliff. N. Y.
Quaker Rubber Div. H K Porter Co. 4915 Comly St. Philadelphia 24. Pa.
Raybestos-Manhattan. Inc. Packing Div. Manheim. Pa.
Robinson. John R. 350 W 31st St. New York 1. N. Y.
Sea-Ro Packing Co. 133 Wood-Ridge St. Wood-Ridge. N. J.
Sexauer. J A Mfg Co. 2503 3rd Ave. New York 51. N. Y.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
Union Asbestos & Rubber Co. Dept 1819. 332 S Michigan Ave. Chicago 4. Ill.
U S Gasket Co. 602 N 10th St. Camden. N. J.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.

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Akron Metallic Gasket Co. 150-164 N Union St. Akron. Ohio
Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Chase Brass & Copper Co. 236 Grand St. Waterbury 20. Conn.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19. Ill.
Darcold Co Inc. 145 Sixth Ave. New York 13. N. Y.
Division Lead Co. 836 W Kinzie St. Chicago 22. Ill.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7. Ill.
Fitzgerald Mfg Co. 691 Main St. Torrington. Conn.
Flexitallic Gasket Co. 8th & Bailey Sts. Camden 2. N. J.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Greene. Tweed & Co. 322 Elm Ave. North Wales. Pa.
Hollow Center Packing Co. 6523 Euclid Ave. Cleveland 3. Ohio
Johns-Manville. 22 E 40th St. New York 16. N. Y.
New Jersey Asbestos Co. 1 Water St. New York. N. Y.
Pilot Packing Co Inc. P O Box 748. Sea Cliff. N. Y.
Robinson. John R. 350 W 31st St. New York 1. N. Y.
Sea-Ro Packing Co. 133 Wood-Ridge St. Wood-Ridge. N. J.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
U S Gasket Co. 602 N 10th St. Camden. N. J.

GASKETS, CORK

Akron Metallic Gasket Co. 150-164 N Union St. Akron. Ohio
Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Armstrong Cork Co. Liberty St. Lancaster. Pa.
Chesterton. A W Co. 6 Ashland St. Everett 49. Mass.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19. Ill.
Darcold Co. Inc. 145 Sixth Ave. New York 13. N. Y.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19. Ill.
Ernst Water Column & Gage Co. 250 S Livingston Ave. Livingston. N. J.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7. Ill.
Fitzgerald Mfg Co. 691 Main St. Torrington. Conn.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Greene. Tweed & Co. 322 Elm Ave. North Wales. Pa.
Mundet Cork Corp. 7101 Tonnelle Ave. North Bergen. N. J.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
U. S. Rubber Co. 1230 6th Ave. New York 20. N. Y.

GASKETS, FELT, FIBER

Akron Metallic Gasket Co. 150-164 N Union St. Akron. Ohio
American Felt Co. Glenville. Conn.
Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.

Belmont Packing & Rubber Co. Butler & Sepviva Sts. Phila 37, Pa.
Chesterton, A W Co. 6 Ashland St. Everett 49, Mass.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19, Ill.
Collins Packing Co. Inc. 401 N Broad St. Philadelphia 8, Pa.
Crane Packing Co. 1830 Cuyler Ave. Chicago 13, Ill.
Darcoid Co. Inc. 145 Sixth Ave. New York 13, N. Y.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7, Ill.
Felters Co. 210 South St. Boston 11, Mass.
Fitzgerald Mfg Co. 691 Main St. Torrington, Conn.
Flexrock Co. 3677 Filbert St. Phila 4, Pa.
Garlock Packing Co. 402 E Main St. Palmyra, N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4, N. J.
Greene, Tweed & Co. 322 Elm Ave. North Wales, Pa.
Johns-Manville, 22 E 40th St. New York 16, N. Y.
Linear Inc. State Rd & Levick St. Tacony, Phila 35, Pa.
New Jersey Asbestos Co. 1 Water St. New York, N. Y.
New York Belting & Packing Co. 1 Market St. Passaic, N. J.
Pilot Packing Co Inc. P O Box 748, Sea Cliff, N. Y.
Raybestos-Manhattan Inc. Packing Div. Manheim, Pa.
Sexauer, J A Mfg Co. 2503 3rd Ave. New York 51, N. Y.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10, Texas
United States Rubber Co. 1230 6th Ave. New York 20, N. Y.

GASKETS, LEATHER

Akron Metallic Gasket Co. 150-164 N Union St. Akron, Ohio
Alexander Bros. 406 N 3rd St. Phila. 7, Pa.
Anchor Packing Co. 401 N Broad St. Philadelphia 8, Pa.
Baldwin Belting Inc. 74-76 Murray St. New York 7, N. Y.
Belmont Packing & Rubber Co. Butler & Sepviva Sts. Phila 37, Pa.
Chicago Belting Co. 125 N Green St. Chicago 7, Ill.
Collins Packing Co. Inc. 401 N Broad St. Philadelphia 8, Pa.
Darcoid Co. Inc. 145 Sixth Ave. New York 13, N. Y.
Fisher Leather Belting Co Inc. 325 N 3rd St. Phila 6, Pa.
Fitzgerald Mfg Co. 691 Main St. Torrington, Conn.
Garlock Packing Co. 402 E Main St. Palmyra, N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4, N. J.
Graton & Knight Co. 356 Franklin St. Worcester 4, Mass.
Greene, Tweed & Co. 322 Elm Ave. North Wales, Pa.
New Jersey Asbestos Co, 1 Water St. New York, N. Y.
Pilot Packing Co Inc. P O Box 748, Sea Cliff, N. Y.
Schieren, Chas A Co. 30 Ferry St. New York 38, N. Y.
Sexauer, J A Mfg Co. 2503 3rd Ave. New York 51, N. Y.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10, Texas
Whiting Leather & Belting Co. 9 Murray St. New York 7, N. Y.
Williams, I B. & Sons, 51 Washington St. Dover, N. H.

GASKETS, METALLIC

Akron Metallic Gasket Co. 150-164 N Union St. Akron, Ohio
Anchor Packing Co. 401 N Broad St. Philadelphia 8, Pa.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19, Ill.
Collins Packing Co. Inc. 401 N Broad St. Philadelphia 8, Pa.
Crane Co. 836 S Michigan Ave. Chicago 5, Ill.
Division Lead Co. 836 W Kinzie St. Chicago 22, Ill.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7, Ill.
Fitzgerald Mfg Co. 691 Main St. Torrington, Conn.
Flexitallic Gasket Co. 8th & Bailey Sts. Camden 2, N. J.
Flexrock Co. 3677 Filbert St. Phila 4, Pa.
Garlock Packing Co. 402 E Main St. Palmyra, N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4, N. J.
Greene, Tweed & Co. 322 Elm Ave. North Wales, Pa.
Hollow Center Packing Co. 6523 Euclid Ave. Cleveland 3, Ohio
Johns-Manville, 22 E 40th St. New York 16, N. Y.
Mario Co. Inc. 434 Broadway, New York 13, N. Y.
New Jersey Asbestos Co, 1 Water St. New York, N. Y.
Pilot Packing Co Inc. P O Box 748, Sea Cliff, N. Y.
Robinson, John R. 350 W 31st St. New York 1, N. Y.
Sea-Ro Packing Co. 133 Wood-Ridge St. Wood-Ridge, N. J.
Sexauer, J A Mfg Co. 2503 3rd Ave. New York 51, N. Y.
Smooth-On Mfg Co. 572 Communipaw Ave. Jersey City 4, N. J.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10, Texas
U S Gasket Co. 602 N 10th St. Camden, N. J.

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Akron Metallic Gasket Co. 150-164 N Union St. Akron, Ohio
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Armstrong Cork Co. Liberty St. Lancaster, Pa.
Belmont Packing & Rubber Co. Butler & Sepviva Sts. Phila 37, Pa.
Chesterton, A W Co. 6 Ashland St. Everett 49, Mass.
Chicago Belting Co. 125 N Green St. Chicago 7, Ill.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19, Ill.
Clow, James B & Sons. 201-299 N Talman Ave. Chicago 12, Ill.
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Crane Co. 836 S Michigan Ave. Chicago 5, Ill.
Crane Packing Co. 1830 Cuyler Ave. Chicago 13, Ill.
Darcoid Co Inc. 145 Sixth Ave. New York 13, N. Y.
Ehret Magnesia Mfg Co. Valley Forge, Pa.
Ernst Water Column & Gage Co. 250 S Livingston Ave. Livingston, N. J.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7, Ill.
Garlock Packing Co. 402 E Main St. Palmyra, N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4, N. J.
Goodyear Tire & Rubber Co. Inc. 1144 E Market St. Akron 16, Ohio
Goshen Rubber Co. Inc. 9th & Iowa Sts. Goshen, Ind.
Greene, Tweed & Co. 322 Elm Ave. North Wales, Pa.
Hewitt-Robins Inc. 370 Lexington Ave. New York 17, N. Y.
Hollow Center Packing Co. 6523 Euclid Ave. Cleveland 3, Ohio
Johns-Manville, 22 E 40th St. New York 16, N. Y.
Klingerit Inc. 16 Hudson St. New York 13, N. Y.
Linear Inc. State Rd & Levick St. Tacony, Phila 35, Pa.
Mario Co. Inc. 434 Broadway, New York 13, N. Y.
New York Belting & Packing Co. 1 Market St. Passaic, N. J.
New Jersey Asbestos Co. 1 Water St. New York, N. Y.
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12, Ohio
Pilot Packing Co Inc. P O Box 748, Sea Cliff, N. Y.
Quaker Rubber Div. H K Porter Co. 4915 Comly St. Philadelphia 24, Pa.
Raybestos-Manhattan Inc. 61 Willett St. Passaic, N. J.
Sea-Ro Packing Co. 133 Wood-Ridge St. Wood-Ridge, N. J.
Sexauer, J A Mfg Co. 2503 3rd Ave. New York 51, N. Y.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10, Texas
Thermoid Co. Trenton, N. J.
U S Gasket Co. 602 N 10th St. Camden, N. J.
United States Rubber Co. 1230 6th Ave. New York 20, N. Y.

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Allen-Sherman-Hoff Co. 227 S 15th St. Philadelphia 2, Pa.
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Bergen Point Iron Wks. Foot of W 8th St. Bayonne, N. J.
Chain Belt Co. 1874 W Bruce St. Milwaukee 4, Wis.
Continental Gin Co. 4500 5th Ave S. Birmingham 2, Ala.
Corrigan, J C. Co Inc. 41-47 Norwood St. Boston 22, Mass.
Fairfield Engrg Co. 320 Chicago Ave. Marion, Ohio
Fuller Co. 120 Bridge St. Catasauqua, Pa.
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McNally Pittsburg Mfg Corp. Pittsburg, Kans.
National Conveyors Co Inc. 50 Church St. New York 7, N. Y.
Nazareth Steel Fabricators Inc. Nazareth, Pa.
Stephens-Adamson Mfg Co. 5 Ridgeway, Aurora, Ill.
Stock Equip Co. 715 P Hanna Bldg. Cleveland 15, Ohio
Warren Brothers Roads Co. 38 Memorial Dr. Cambridge 42, Mass.

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Bond, Charles Co. 617-623 Arch St. Philadelphia 6, Pa.
Boston Gear Wks. 14 Hayward St. Quincy 71, Mass.
Brad Foote Gear Wks. 1309 S Cicero Ave. Cicero 50, Ill.
Brown Boveri Corp. 19 Rector St. New York 6, N. Y.
Cleveland Worm & Gear Co. 3262 E 80 St. Cleveland 4, Ohio
Continental Gin Co. 4500 S 5th Ave. Birmingham 2, Ala.
Delaval Steam Turbine Co. Trenton 2, N. J.
Falk Corp. 3001 W Canal St. Milwaukee 8, Wis.
Farrel-Birmingham Co Inc. Ansonia, Conn.
Farval Corp. 3262 E 80th St. Cleveland 4, Ohio
Fier & Stowell Co. 147 E Becher St. Milwaukee 7, Wis.
Foote Bros Gear & Machine Corp. 4545 S Western Blvd. Chicago
Industrial Gear Mfg Co. 4543 Van Buren St. Chicago 24, Ill.
James, D O Mfg Co. 1140 W Monroe St. Chicago 7, Ill.
Jones, W A Foundry & Machine Co. 4401 Roosevelt Rd. Chicago 24, Ill.
Link-Belt Co. 3045 W Hunting Park Ave. Philadelphia 40, Pa.
McNally Pittsburgh Mfg Corp. Pittsburg, Kans.
Medart Co. 100 Potomac St. St Louis 18, Mo.
Michigan Tool Co. 7171 E McNichols Rd. Detroit 12, Mich.
Palmer-Bee Co. 1710 Poland Ave. Detroit 12, Mich.
Philadelphia Gear Wks Inc. G St & Erie Ave. Philadelphia 34, Pa.
Ramsey Chain Co Inc. Troy Rd. Albany 1, N. Y.
Sier Bath Gear & Pump Co Inc. 9252 Hudson Blvd. North Bergen, N. J.
Smith, Winfield H Corp. 128 Eaton St. Springfield, N. Y.
Snow-Nabstedt Gear Corp. 251 Welton St. Hamden 7, Conn.
Stephens-Adamson Mfg Co. 5 Ridgeway, Aurora, Ill.
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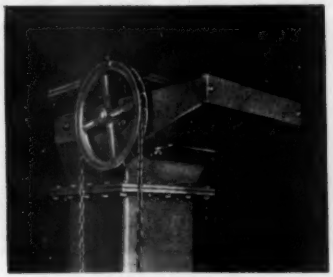

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Buda Co. 154th & Commercial, Harvey, Ill.
Caterpillar Tractor Co. 600 W Washington St. Peoria 8, Ill.
Chicago Pneumatic Tool Co. 6 E 44th St. New York 17, N. Y.
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Hill Diesel Engine Corp. 238 Mill St. Lansing 3, Mich.
Ingersoll-Rand Co. 11 Broadway, New York 4, N. Y.
Kato Engineering Co. 122 Maxfield St. Mankato, Minn.
Mall Tool Co. 7740 S Chicago Ave. Chicago 19, Ill.
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Onan, D W & Sons, Inc. University Ave, S E at 25th, Minneapolis 14, Minn.
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Sinez Projects Inc. 745 Fifth Ave. New York 22, N. Y.
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Union Diesel Engine Co. 2300 E 7th St. Oakland 6, Calif.
Venn-Severin Machine Co. 1317 W North Ave. Chicago, Ill.
Westinghouse Electric Corp. PO Box 868, Pittsburgh 30, Pa.
Witte Engine Wks Div. 1600 Oakland Ave. Kansas City 3, Mo.
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Brown Boveri Corp. 19 Rector St. New York 6, N. Y.
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Columbia Electric Mfg Co. 4519 Hamilton Ave. Cleveland 14, Ohio
Consolidated Diesel Elec Corp. 230 E 8th St. Mt. Vernon, N. Y.
Delco Products Div. General Motors 329 E First St. Dayton 1, Ohio
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13, Minn.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12, Ohio
Elliott Co. Jeannette, Pa.
Fairbanks, Morse & Co. Fairbanks-Morse Bldg. Chicago 5, Ill.
General Electric Co. Schenectady 5, N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17, N. Y.
Hobart Brothers Co. Hobart Square, Troy 1, Ohio
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Brown Boveri Corp. 19 Rector St. New York 6, N. Y.
Burke Electric Co. 12th & Cranberry Sts. Erie, Pa.
Century Electric Co. 1806 Pine St. St Louis 3, Mo.
Columbia Electric Mfg Co. 4519 Hamilton Ave. Cleveland 14, Ohio
Consolidated Diesel Elec Corp. 230 E 8th St. Mt Vernon, N. Y.
Delco Products Div. General Motors Corp. 329 E First St. Dayton 1, Ohio
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Eclipse-Pioneer Div Bendix Aviation Corp. Teterboro, N. J.
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Electric Products Co. 1720 Clarkstone Rd. Cleveland 12, Ohio
Electro-Dynamic Div. Electric Boat Co, Bayonne, N. J.
Elliott Co. Jeannette, Pa.
Fairbanks, Morse & Co. Fairbanks-Morse Bldg. Chicago 5, Ill.
General Electric Co. Schenectady 5, N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17, N. Y.
Hanson-Van Winkle-Munning Co. Church St. Matawan, N. J.
Hobart Brothers Co. Hobart Square, Troy 1, Ohio
Ideal Electric & Mfg Co. E First St. Mansfield, Ohio
Kato Engineering Co. 122 Maxfield St. Mankato, Minn.
Onan, D W & Sons, Inc. University Ave, S E at 25th, Minneapolis 14, Minn.
Reliance Elec & Engrg Co. 1068 Ivanhoe Rd. Cleveland 10, Ohio
Robbins & Myers Inc. 1345 Lagonda Ave. Springfield, Ohio
Star-Kimble Motor Div. 200 Bloomfield Ave. Bloomfield, N. J.
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Brown Boveri Corp. 19 Rector St. New York 6, N. Y.
Burke Electric Co. 12th & Cranberry Sts. Erie, Pa.
Consolidated Diesel Elec Corp. 230 E 8th St. Mt Vernon, N. Y.
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13, Minn.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12, Ohio
Elliott Co. Jeannette, Pa.
Ideal Elec & Mfg Co. E First St. Mansfield, Ohio
Kato Engineering Co. 122 Maxfield St. Mankato, Minn.
LeRoi Co. 1706 S 68th St. Milwaukee 14, Wis.
Onan, D W & Sons, Inc. University Ave. S E at 25th. Minneapolis 14. Minn.
Ready Power Co. 11231 Freud Ave. Detroit, Mich.
Sheppard, R H, Co Inc. 101 Philadelphia St. Hanover, Pa.
Skinner Engine Co. 337 W 12th St. Erie, Pa.
Star-Kimble Motor Div. 200 Bloomfield Ave. Bloomfield, N. J.
Sterling Engine Co. 1270 Niagara St. Buffalo 13, N. Y.
Troy Engine & Machine Co. 2500 Railroad Ave. Troy, Pa.
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(See Boilers)

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DeLaval Steam Turbine Co. Trenton 2, N. J.
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13, Minn.
Elliott Co. Jeannette, Pa.
General Electric Co. Schenectady 5, N. Y.
Murray Iron Works Co. 1106 Washington St. Burlington, Iowa
Pyle-National Co. 1334 N Kostner Ave. Chicago 51, Ill.
Terry Steam Turbine Co. P O Box 1200, Hartford 1, Conn.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Whiton Machine Co. 190 Howard St. New London, Conn.
Worthington Pump & Machinery Corp. Harrison, N. J.

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Houghton, E F & Co, 303 W Lehigh Ave, Philadelphia 33, Pa.
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Esso Standard Oil Co, 15 W 51st St, New York 19, N. Y.
Fiske Bros Refining Co, Lubriplate Div, 129 Lockwood St, Newark 5, N. J.
Freedom-Valvoline Oil Co, Freedom, Pa.
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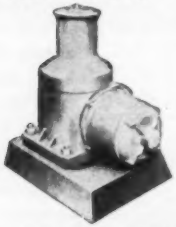

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Sims Co, 1402 E 18th St, Erie, Pa.
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Brownell Co, 306 N Findlay St, Dayton 1, Ohio
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Croll-Reynolds Engrg Co Inc, 17 John St, New York 7, N. Y.
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Foster Wheeler Corp, 165 Broadway, New York 6, N. Y.
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Hoppes Mfg Co, Box 906, Springfield, Ohio
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National Pipe Bending Co, 114 River St, New Haven 13, Conn.
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Superior Combustion Industries, Inc, Times Bldg, New York 18, N. Y.
Taco Heaters Inc, 137 South St, Providence, R. I.
Timken Detroit Axle Co, Box 56, Roosevelt Park Sta, Detroit 32, Mich.
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Trane Co, LaCrosse, Wis.
U. S. Air Conditioning Corp, Como Ave S E at 33rd, Minneapolis 14, Minn.
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Stewart-Warner Corp, 1826 Diversey Pkwy, Chicago 14, Ill.
Thermoid Co. Trenton, N. J.
Titeflex Inc. 500 Frelinghuysen Ave, Newark 5, N. J.
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Universal Metal Hose Corp. 2133 S Kedzie, Chicago 23, Ill.

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Darcold Co Inc. 145 Sixth Ave, New York 13, N. Y.
Mulconroy Co, 54th & Jefferson St, Philadelphia 31, Pa.
Packless Metal Products Corp. 31 Winthrop Ave, New Rochelle, N. Y.
Pennsylvania Flexible Metallic Tubing Co. 72nd & Powers Lane, Phila 42, Pa.
Seamlex Co. Inc. 41-23 24th St, Long Island City 1, N. Y.
Stewart-Warner Corp, 1826 Diversey Parkway, Chicago 14, Ill.
Titeflex Inc. 500 Frelinghuysen Ave, Newark 5, N. J.
Uniflex Metal Hose Corp. 52 Rubber Ave, Naugatuck, Conn.
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Anchor Packing Co. 401 N Broad St, Philadelphia 8, Pa.
Atlantic Metal Hose Co. 123 W 64th St, New York 23, N. Y.
Boston Woven Hose & Rubber Co, P O Box 1071, Cambridge, Mass.
Chicago Metal Hose Corp. 1315 S Third Ave, Maywood, Ill.
Chiksan Co. 330 N Pomona Ave, Brea, Calif.
Cincinnati Rubber Mfg Co. Franklin Ave, Cincinnati 12, Ohio
Darcold Co Inc. 145 Sixth Ave, New York 13, N. Y.
Elliott Co. Jeannette, Pa.
Gates Rubber Co. 999 S Broadway, Denver 17, Colo.
Gillmer, L H Co. Div U. S. Rubber Co. Tacony, Philadelphia 35, Pa.
Goodrich, B F, Co. Akron, Ohio
Goodyear Tire & Rubber Co. Inc. 1144 E Market St, Akron 16, Ohio
Hewitt-Robins Inc. 370 Lexington Ave, New York 17, N. Y.
National Airoil Burner Co. 1276 E Sedgley Ave, Philadelphia 34, Pa.
New York Belting & Packing Co. 1 Market St, Passaic, N. J.
Pennsylvania Flexible Metallic Tubing Co, 72nd & Powers Lane, Philadelphia 42, Pa.
Quaker Rubber Div, H K Porter Co, 4915 Comly St, Philadelphia 24, Pa.
Raybestos-Manhattan Inc, 61 Willett St, Passaic, N. J.
Republic Rubber Div, Lee Rubber & Tire Corp, Albert St, Youngstown 1, Ohio
Seamlex Co Inc, 41-23 24th St, Long Island City 1, N. Y.
Thermoid Co. Trenton, N. J.
Titeflex Inc, 500 Frelinghuysen Ave, Newark 5, N. J.
United States Rubber Co. 1230 6th Ave, New York 20, N. Y.
Universal Metal Hose Corp, 2133 S Kedzie St, Chicago 23, Ill.

HUMIDIFIERS, CENTRAL PLANT

Air & Refrigeration Corp. 475 Fifth Ave, New York 17, N. Y.
Armstrong Machine Works, 905 Maple St, Three Rivers, Mich.
Bahnson Co, 1001 S Marshall St, Winston-Salem, N. C.
Buffalo Forge Co. 488 Broadway, Buffalo 5, N. Y.
Carrier Corp, 200 S Geddes St, Syracuse, N. Y.
Clarage Fan Co, North & Porter Sts, Kalamazoo 16, Mich.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Johnson Service Co. 507 E Michigan St, Milwaukee 2, Wis.
McDonnell & Miller Inc. 3500 N Spaulding Ave, Chicago 18, Ill.
Minneapolis - Honeywell Regulator Co, 2753 Fourth Ave S, Minneapolis 8, Minn.
Murray, D J, Mfg Co, 1024 Third St, Wausau, Wis.
Niagara Blower Co, 405 Lexington Ave, New York 17, N. Y.
Ross, J O Engrg Corp, 350 Madison Ave, New York 17, N. Y.
Steel Prod Engrg Co, P O Box 719, Springfield, Ohio
Surface Combustion Corp, 2375 Dorr St, Toledo 1, Ohio
Trane Co, LaCrosse, Wis.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa

HUMIDIFIERS, DIRECT, SPRAY-HEAD

Bahnson Co, 1001 S Marshall St, Winston-Salem, N. C.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Grinnell Co Inc, 260 W Exchange St, Providence 1, R. I.
Minneapolis - Honeywell Regulator Co, 2753 Fourth Ave S, Minneapolis 8, Minn.
Murray, D J, Mfg Co, 1024 Third St, Wausau, Wis.
Spray Engrg Co, 114 Central St, Somerville 45, Mass.
Spraying Systems Co, 3201 Randolph St, Bellwood, Ill.
Supreme Electric Products Corp, 194 Vassar St, Rochester 7 N. Y.
Trane Co, LaCrosse, Wis.

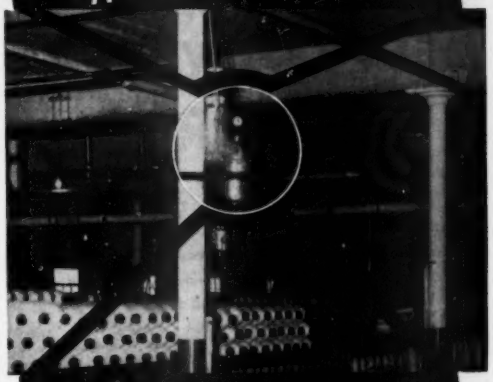
HUMIDIFIERS, UNIT ROOM

Air & Refrigeration Corp, 475 Fifth Ave, New York 17, N. Y.
Armstrong Machine Works, 905 Maple St, Three Rivers, Mich.
Buffalo Forge Co, 488 Broadway, Buffalo 5, N. Y.
Carrier Corp, 300 S Geddes St, Syracuse 1, N. Y.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Murray, D J, Mfg Co, 1024 Third St, Wausau, Wis.
Niagara Blower Co, 405 Lexington Ave, New York 17, N. Y.
Spraying Systems Co, 3201 Randolph St, Bellwood, Ill.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.

HUMIDISTATS

Bahnson Co, 1001 S Marshall St, Winston-Salem, N. C.
Barber-Colman Co, Rockford, Ill.

Question: What about Unit Type Steam Humidifiers?



Answer:
Armstrong Unit Type Steam Humidifiers are ideal for overcoming wintertime dry air conditions for the following reasons:

- **Fully Automatic.**
- **Accurate Control**—within 1%—2% relative humidity
- **Clean**—no residue in the air
- **Quiet**—acoustically designed
- **No cooling effect**—raise room temperature a degree or two
- **Economical to operate**—pennies per day per unit—½ to ¼ the price of water spray equipment
- **Low in first cost** approximately $182 complete for a unit to handle up to 40,000 cu. ft.
- **Easy to install anywhere**—hooked up to existing steam and electrical systems much like unit heaters
- **Dependable**—quality materials and workmanship
- **Guaranteed**—complete satisfaction or your money back. Write today.

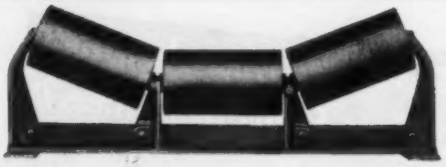
ARMSTRONG MACHINE WORKS
812 Maple Street, Three Rivers, Mich.

For Full Details Send for BULLETIN 1772

Operating principles, capacities, sizes, prices, hookups, selection data and other useful information — all included in Bulletin 1772. Send for your copy today.

ARMSTRONG *Steam* HUMIDIFIERS

BUILT BY THE MAKERS OF ARMSTRONG STEAM TRAPS



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Sizes from 14 to 60 inches wide. The rolls are long wearing, and balanced. They have rounded corners to prolong belt life, through grease leads and labyrinth grease seals. Timken or ball bearings. Also rubber covered rolls, cast iron rolls, and belt trippers. Prompt delivery. The C. O. Bartlett & Snow Company, 6235 Harvard Avenue, Cleveland 5, Ohio.

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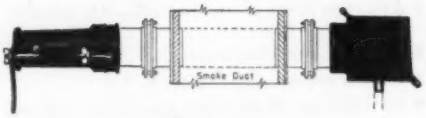

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Automatic Control Co. 1005 University Ave. St Paul 4. Minn.
Automatic Temperature Control Co. 5212 Pulaski Ave. Phila 44. Pa.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10. Ohio
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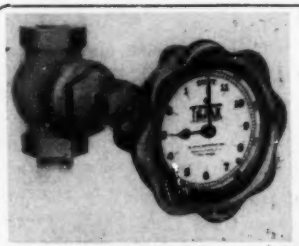
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1. N. Y.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
Diamond Power Specialty Corp. Lancaster. Ohio
Ernst Water Column & Gage Co. 250 S Livingston Ave. Livingston. N. J.
Fischer & Porter Co. 500 County Line Rd. Hatboro. Pa.
Fisher Governor Co. Marshalltown. Iowa
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
Frick Co. W Main St. Waynesboro. Pa.
Hammel-Dahl Co. 343 Richmond St. Providence 3. R. I.
Hays Corp. 742 E 8th St. Michigan City. Ind.
Jerguson Gage & Valve Co. 87 Fellsway. Somerville. Mass.
Klingerit Inc. 16 Hudson St. New York 13. N. Y.
Liquidometer Corp. 41-03 36th St. Long Island City 1. N. Y.
Lumenite Electronic Co. 407 S Dearborn St. Chicago 5. Ill.
Lunkenheimer Co. P O Box 360. Annex Station. Cincinnati 14. Ohio
McDonnell & Miller Inc. 3500 N Spaulding Ave. Chicago 18. Ill.
Magnetrol Inc. 2110 S Marshall Blvd. Chicago 23. Ill.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Mason-Neilan Regulator Co. 1190 Adams St. Boston 24. Mass.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
Nugent. Wm W. & Co. Inc. 402 N Hermitage Ave. Chicago 22. Ill.
Oil-Rite Corp. 3478 S 13th St. Milwaukee 15. Wis.
Panellit Inc. Panalarm Products Div. 7216 N Clark St. Chicago 26. Ill.
Photoswitch Inc. 77 Broadway. Cambridge 42. Mass.
Reliance Gauge Column Co. 5902 Carnegie Ave. Cleveland 3. Ohio



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Thermo Instruments Co. 1166 El Camino Real, Belmont, Calif.
Trico Fuse Mfg Co. 2948 N 5th St, Milwaukee 12, Wis.
Uehling Instrument Co. 473 Getty Ave, Paterson 3, N. J.
U S Gauge Div, American Machine & Metals Inc, Sellersville, Pa.
Velan Engrg Co. 1216 Drummond St, Montreal, P. Q., Canada
Wallace & Tiernan, 1 Main St, Belleville 9, N. J.
Wright-Austin Co. 3245 Wight St, Detroit 7, Mich.
Yarnall-Waring Co. Chestnut Hill, Philadelphia 18, Pa.

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Automatic Temperature Control Co. 5212 Pulaski Ave, Phila 44, Pa.
Bailey Meter Co. 1050 Ivanhoe Rd, Cleveland 10, Ohio
Defender Instrument & Regulator Co. 815 Clark Ave, St Louis 2, Mo.
Hays Corp. 742 E 8th St, Michigan City, Ind.
Henschel Corp, 14 Cedar St, Amesbury, Mass.
Panellit Inc. Panalarm Products Div. 7216 N Clark St, Chicago 26, Ill.
Pittsburgh Valve & Fittings Corp, Barberton, Ohio
Republic Flow Meters Co. 2222 Diversey Parkway, Chicago 47, Ill.
Servo-Tek Products Co. Inc. 4 Godwin Ave, Paterson 1, N. J.
Sig-Trans Inc. Haverhill Rd, Amesbury, Mass.
Tejax Engineering Corp, P O Box 1134, Providence 1, R. I.

INDICATORS, REMOTE LOAD

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Leeds & Northrup Co. 4970 Stenton Ave, Philadelphia 44, Pa.
Republic Flow Meters Co. 2222 Diversey Parkway, Chicago 47, Ill.
Sig-Trans Inc. Haverhill Rd, Amesbury, Mass.
Weston Electrical Instrument Corp, 614 Frelinghuysen Ave, Newark 5, N. J.

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Central Auto Sprinkler Co, 4th & Cannon Ave, Lansdale, Pa.
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Ernst Water Column & Gage Co. 250 S Livingston Ave, Livingston, N. J.
Lunkenheimer Co, P O Box 360 Annex Station, Cincinnati 14, Ohio
Nathan Mfg Co. 416 E 106th St, New York 29, N. Y.
Nugent, Wm W & Co Inc. 402 N Hermitage Ave, Chicago 22, Ill.
Oil-Rite Corp. 3478 S 13th St, Milwaukee 15, Wis.
Schutte & Koerting Co, Cornwells Heights, Bucks County, Pa.
Trico Fuse Mfg Co. 2948 N 5th St, Milwaukee 12, Wisc.

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Bailey Meter Co. 1050 Ivanhoe Rd, Cleveland 10, Ohio
Brooke Engrg Co. Inc. 4517 Wayne Ave, Philadelphia 20, Pa.
Combustion Control Corp. 77 Broadway, Cambridge 42, Mass.
Diamond Power Specialty Corp, Lancaster, Ohio
Ess Instrument Co. 96 S Washington Ave, Bergenfield, N. J.
General Power Plant Corp. 381 Fourth Ave, New York 16, N. Y.
Leeds & Northrup Co, 4970 Stenton Ave, Philadelphia 44, Pa.
Lumenite Electronic Co. 407 S Dearborn St, Chicago 5, Ill.
Preferred Utilities Mfg Corp, 1860 Broadway, New York 23, N. Y.

INJECTORS

Condenser Service & Engrg Co, Inc. 89 River St, Hoboken, N. J.
Eclipse Fuel Engrg Co. 711 S Main St, Rockford, Ill.
Johnson Mfg Co. Fox & Holly Sts, Seattle 8, Wash.
Manning, Maxwell & Moore Inc, 11 Elias St, Bridgeport 2, Conn.
Nathan Mfg Co. 416 E 106th St, New York 29, N. Y.
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Penberthy Injector Co. 1242 Holden Ave, Detroit 2, Mich.
Schutte & Koerting Co, Cornwells Heights, Bucks County, Pa.

INSTRUMENTS, ELECTRICAL, INDICATING

Alemite Div, Stewart-Warner Corp, 1826 Diversey Pkwy, Chicago 14, Ill.
Associated Research Inc, 3758 W Belmont Ave, Chicago 18, Ill.
Autocall Co, 1047 Warden Ave, Shelby, Ohio
Automatic Temperature Control Co, 5212 Pulaski Ave, Phila 44, Pa.
Baldwin - Lima - Hamilton Corp, Paschall P O, Philadelphia 42, Pa.
Beckman Instruments Inc, 820 Mission St, South Pasadena, Calif.
Biddle, James G, Co, 1316 Arch St, Philadelphia 7, Pa.
Bristol Co. Waterbury 91, Conn.
Builders-Providence, 345 Harris Ave, Providence 1, R. I.
Burlington Instrument Co, 203 N 3rd St, Burlington, Iowa
Cambridge Instr Co, Inc, 3007 Grand Central Terminal, N. Y. 17, N. Y.
Condenser Service & Engrg Co, Inc. 89 River St, Hoboken, N. J.
Diamond Power Specialty Corp, Lancaster, Ohio
Eclipse-Pioneer Div, Bendix Aviation Corp, Teterboro, N. J.
Fischer & Porter Co, 500 County Line Rd, Hatboro, Pa.
Foxboro Co. 38 Neponset Ave, Foxboro, Mass.
General Electric Co, Schenectady 5, N. Y.
Graybar Electric Co Inc, 420 Lexington Ave, New York 17, N. Y.
Leeds & Northrup Co, 4970 Stenton Ave, Philadelphia 44, Pa.
Manning, Maxwell & Moore Inc, 11 Elias St, Bridgeport 2, Conn.
Metron Instrument Co. 432 Lincoln St, Denver 9, Colo.
Minneapolis Honeywell Regulator Co, 2753 Fourth Ave S, Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div, Wayne & Roberts Aves, Philadelphia 44, Pa.
Photovolt Corp, 95 Madison Ave, New York 16, N. Y.
Pyrometer Instrument Co, Bergenfield, N. J.
Republic Flow Meters Co. 2222 Diversey Parkway, Chicago 47, Ill.
Roller-Smith, 1756 W Market St, Bethlehem, Pa.
Schutte & Koerting Co. Cornwells Heights, Bucks County, Pa.
Simpson Electric Co, 5200 W Kinzie St, Chicago 44, Ill.
Sperry Products Inc. Danbury, Conn.
Sticht, Herman H Co. 27 Park Place, New York 7, N. Y.
U S Gage Div, American Machine & Metals Inc, Sellersville, Pa.
Velan Engrg Co, 1216 Drummond St, Montreal, P. Q., Canada
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
Weston Electrical Instrument Corp, 614 Frelinghuysen Ave, Newark 5, N. J.
Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

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Automatic Temperature Control Co, 5212 Pulaski Ave, Phila 44, Pa.
Baldwin - Lima - Hamilton Corp, Paschall P O, Philadelphia 42, Pa.

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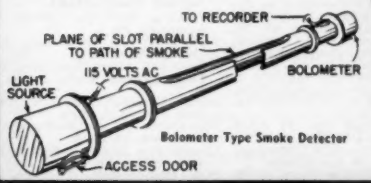
The Bailey Smoke Density Recorder can help you erase smoke troubles. It quickly reveals inefficient operating conditions and provides 24-hour continuous records for later study.

Both light source and Bolometer are of sealed beam construction to assure long, accurate life. This unique smoke detector is not affected by high ambient temperatures or corrosive gases. It needs no cooling devices.

For information on how Bailey can help erase your Smoke troubles write for Bulletin #211 "Bailey Smoke Density Recorder."

Smoke Density Recorder



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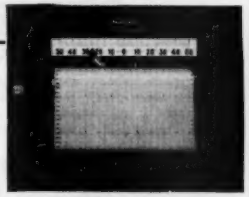
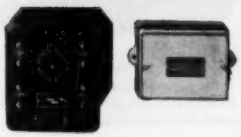
A continuous generator record . . .



a check on non-useful energy



A continuous and accurate record of individual generator output, total station output, system loads and trends . . . these are only a few of the advantages provided by the *ElectroniK* Strip Chart Recorder with special components.

The recorder, when connected to a thermal converter, acts as a wattmeter . . . and with the addition of a phase shifting auto-transformer, it may be used as a varmeter, for accurate recording of the non-useful energy generated.

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Brooks Rotometer Co, Box 432, Lansdale, Pa.
Builders-Providence Inc, 345 Harris Ave, Providence 1, R. I.
Cambridge Instr Co, Inc, 3007 Grand Central Terminal, N. Y. 17, N. Y.
Condenser Service & Engr Co, Inc, 89 River St, Hoboken, N. J.
Cook Electric Co, 2700 Southport Ave, Chicago 14, Ill.
Esterline-Angus Co, Inc, 1201 Main St, Indianapolis 6, Ind.
Fischer & Porter Co, 500 County Line Rd, Hatboro, Pa.
Foxboro Co, 38 Neponset Ave, Foxboro, Mass.
General Electric Co, Schenectady 5, N. Y.
Graybar Electric Co Inc, 420 Lexington Ave, New York 17, N. Y.
Leeds & Northrup Co, 4970 Stenton Ave, Philadelphia 44, Pa.
Manning, Maxwell & Moore Inc, 11 Elias St, Bridgeport 2, Conn.
Minneapolis-Honeywell Regulator Co, 2753 Fourth Ave S, Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co, Industrial Div, Wayne & Roberts Aves, Philadelphia 44, Pa.
Republic Flow Meters Co, 2222 Diversey Parkway, Chicago 47, Ill.
Schutte & Koerting Co, Corwells Heights, Bucks County, Pa.
Servo-Tek Products Co Inc, 4 Godwin Ave, Paterson 1, N. J.
Sperry Products Inc, Danbury, Conn.
Stricht, Herman H, Co, 27 Park Pl, New York 7, N. Y.
Taylor Instrument Cos, 95 Ames St, Rochester 1, N. Y.
Velan Engrg Corp, 1216 Drummond St, Montreal, P. Q., Canada
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
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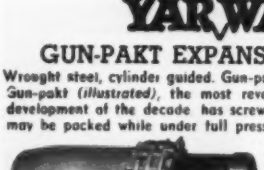

Catalog EJ-1912

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duPont de Nemours, E I & Co, Inc, Wilmington, Del.
General Electric Co, Schenectady 5, N. Y.
Graybar Electric Co Inc, 420 Lexington Ave, New York 17, N. Y.
Johns-Manville, 22 East 40th St, New York 16, N. Y.
Keasbey & Mattison Co, Butler Ave, Ambler, Pa.
Lapp Insulator Co, Inc, 150 Maple St, LeRoy, N. Y.
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Johns-Manville, 22 East 40th St, New York 16, N. Y.
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National Gypsum Co, 325 Delaware Ave, Buffalo 2, N. Y.
Owens - Corning Fiberglas Corp, Wayne Bldg, Toledo 1, Ohio
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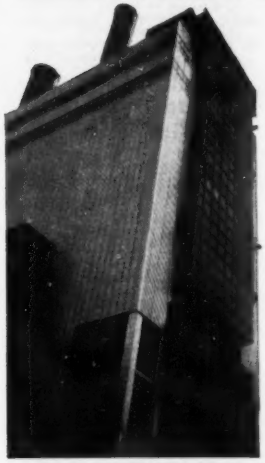

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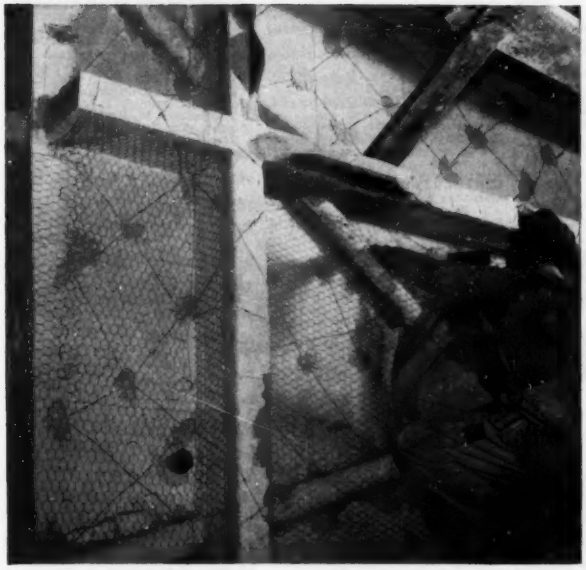

New boiler installation by Babcock & Wilcox Company, an extension of Toledo Edison Company's Acme Plant, has a rated steam output of 650,000 lb. per hr. at a design pressure of 1500 psi. and 1000° F. temperature. The new boiler is the largest in northwestern Ohio.

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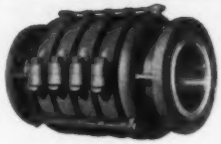

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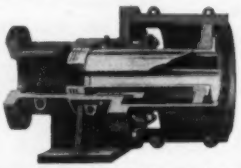

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International Nickel Co. Inc. 67 Wall St. New York 5, N. Y.
Jones & Laughlin Steel Corp. 3rd Ave & Ross St. Pittsburgh 30, Pa.
Kellogg. M W Co. 225 Broadway. New York 7, N. Y.
Lukens Steel Co. Coatesville, Pa.
Mallory, P R & Co Inc. 3029 E Washington St. Indianapolis 6
Murray, A B. Co Inc. 608 Green Lane. Elizabeth, N. J.
Orange Roller Bearing Co. 557 Main St. Orange, N. J.
Pittsburgh Steel Co. Dept PG. Grant Bldg. Pittsburgh 30, Pa.
Revere Copper & Brass Inc. 230 Park Ave. New York 17, N. Y.
Sivyer Steel Casting Co. 1675 S 43rd St. Milwaukee 14, Wis.
Tennessee Coal, Iron & RR Co. U S Steel Sub. Brown Marx Bldg. Birmingham, Ala.

METALS, HEAT-RESISTANT

Air Reduction Sales Co. 60 E 42nd St. New York 17, N. Y.
Allegheny Ludlum Steel Corp. Oliver Bldg. Pittsburgh 22, Pa.
American Steel & Wire Co. Rockefeller Bldg. Cleveland 13, Ohio
Ampco Metal Inc. 1701 S 38th St. Milwaukee 4, Wis.
Armco Steel Corp. 703 Curtis St. Middletown, Ohio
Babcock & Wilcox. 85 Liberty St. New York 6, N. Y.
Canton Stoker Corp. 741 Andrews Pl. S W. Canton 1, Ohio
Carnegie-Illinois Steel Corp. 434 Fifth Ave. Pittsburgh 30, Pa.
Childers Mfg Co. 625 Yale St. Houston, Texas
Cooper Alloy Foundry Co. Bloy St & Ramsay Ave. Hillside, N. J.
Electro Alloys Div. American Brake Shoe Co. Elyria, Ohio
General Metals Corp. 18th & Florida Sts. San Francisco 10, Calif.
Haynes Stellite Co. 725 S Lindsay St. Kokomo, Ind.
International Nickel Co. Inc. 67 Wall St. New York 5, N. Y.
Laclede Stoker Co. 4438 Hunt Ave. St Louis 10, Mo.
Lukens Steel Co. Coatesville, Pa.
Mallory, P R & Co Inc. 3029 E Washington St. Indianapolis 6
Murray, A B. Co Inc. 608 Green Lane. Elizabeth, N. J.
Pittsburgh Steel Co. Dept PG. Grant Bldg. Pittsburgh 30, Pa.
Sivyer Steel Casting Co. 1675 S 43rd St. Milwaukee 14, Wis.
Tennessee Coal, Iron & RR Co. U S Steel Sub. Brown Marx Bldg. Birmingham, Ala.

METERS, AIR, GAS

Alemite Div. Stewart-Warner Corp. 1826 Diversey Pkwy. Chicago 14, Ill.
Bacharach Industrial Instrument Co. 7000 Bennett St. Pittsburgh, Pa.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Builders-Providence, Inc. 345 Harris Ave. Providence 1, R. I.
Croll-Reynolds Co Inc. 17 John St. New York 7, N. Y.
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
Republic Flow Meters Co. 2222 Diversey Parkway. Chicago 47, Ill.
Roots-Connersville Blower Corp. 900 W Mount St. Connersville, Ind.
Simplex Valve & Meter Co. 6870 Upland St. Philadelphia 42, Pa.
Taylor Instrument Cos. 95 Ames St. Rochester 1, N. Y.

METERS, COAL

Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Builders-Providence, Inc. 345 Harris Ave. Providence 1, R. I.
Fairfield Engrg Co. 320 Chicago Ave. Marion, Ohio

METERS, CONDENSATION

American District Steam Co. Bryant St. North Tonawanda, N. Y.
Builders-Providence, Inc. 345 Harris Ave. Providence 1, R. I.
Hennsey Co. 202½ Water St. Watertown, Wis.
Simplex Valve & Meter Co. 6870 Upland St. Philadelphia 42, Pa.

METERS, FLOW

American Hydrotherm Corp. 33-70 12th St. Long Island City 6, N. Y.
Bacharach Industrial Instrument Co. 7000 Bennett St. Pittsburgh 8, Pa.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Barton Instrument Corp. 1429 S Eastern Ave. Los Angeles 22, Calif.
Bowser Inc. Fort Wayne 2, Ind.
Bristol Co. Waterbury 91, Conn.
Brooks Rotameter Co. Box 432. Lansdale, Pa.
Builders-Providence, Inc. 345 Harris Ave. Providence 1, R. I.

advertised in this issue see advertisers' index pages 232-233

METERS
FLOW-COAL FUEL-OIL

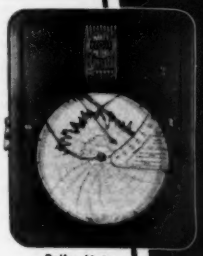
BAILEY METERS

FLOW METERS

It doesn't matter what type of fluid you wish to measure — there is a Bailey Fluid Meter for the job. Bailey Meters indicate, record, control, and integrate the flow of practically any fluid from steam to black liquor.

The inherently correct principle upon which the Bailey Fluid Meter operates, combined with a simple, sturdy mechanism, insures exceptional accuracy with unfailing performance.

It is completely described in Bulletin No. 301-B.



Boiler Meter

BOILER METERS

This boiler operating guide will help you to get most economical performance from your boiler. Records of Steam Flow, Air Flow and Flue Gas Temperature are all included on one chart, to show at a glance whether best combustion efficiency and furnace conditions exist.

Write for Bulletin No. 46-B.

COAL METERS

Human errors and uncertainties in weighing, due largely to changes in moisture content of coal, are eliminated by the Bailey Coal Meter.

It operates on the volumetric principle of measurement, to give a reliable check on the amount of coal delivered to each stoker or pulverizer in a plant, showing results within 1 per cent to 3 per cent of actual coal weight.

This versatile measuring device is not limited to coal alone. It is ideal for measurement of other granular materials such as ore, crushed rock, and cement clinker.

Described in Bulletin No. 221-A.

Coal Meter

FUEL-OIL METERS

The Bailey Fuel-Oil Meter (Area Type) eliminates the need for primary elements and connecting piping. Installed directly in the fuel line, it transmits measurements to standard Bailey electronic receivers.

For return type burners, measurement of fuel burned is accomplished by an electrical circuit which subtracts return line rate of flow from supply line rate of flow.

Write for Bulletin 233.

Area Meter Transmitter

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Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Dearborn Chemical Co. Merchandise Mart Plaza, Chicago 54. Ill.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
Elsler Engrg Co. Inc. 757 S 13th St. Newark 3. N. J.
Fischer & Porter Co. 500 County Line Rd. Hatboro. Pa.
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Hagan Corp. 323 Fourth Ave. Hagan Bldg. Pittsburgh 30. Pa.
Hays Corp. 742 E 8th St. Michigan City. Ind.
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Leeds & Northrup Co. 4970 Stenton Ave. Philadelphia 44. Pa.
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Minneapolis-Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
Republic Flow Meters Co. 2222 Diversey Parkway. Chicago 47. Ill.
Roots-Connersville Blower Corp. 900 W Mount St. Connersville. Ind.
Schutte & Koerting Co. Cornwells Heights. Bucks County. Pa.
Simplex Valve & Meter Co. 6870 Upland St. Philadelphia 42. Pa.
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Taylor Instrument Cos. 95 Ames St. Rochester 1. N. Y.
U S Gauge Div. American Machine & Metals Inc. Sellersville. Pa.
Wallace & Tiernan. 1 Main St. Belleville 9. N. J.

METERS, FREQUENCY

Biddle. James G. Co. 1316 Arch St. Philadelphia 7. Pa.
Bristol Co. Waterbury 91. Conn.
Esterline-Angus Co Inc. 1201 Main St. Indianapolis 6. Ind.
General Electric Co. Schenectady 5. N. Y.
Leeds & Northrup Co. 4970 Stenton Ave. Philadelphia 44. Pa.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
Roller-Smith. 1756 W Market St. Bethlehem. Pa.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.

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Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10. Ohio
Beckman Instruments Inc. 820 Mission St. South Pasadena. Calif.
Bristol Co. Waterbury 91. Conn.
Cambridge Instrument Co Inc. 3007 Grand Central Terminal. New York 17. N. Y.
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
Hanson-Van Winkle-Munning Co. Church St. Matawan. N. J.
LaMotte Chemical Products Co. Towson. Baltimore 4. Md.
Leeds & Northrup Co. 4970 Stenton Ave. Philadelphia 44. Pa.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
National Technical Labs. 820 Mission St. South Pasadena. Calif.
Permutit Co. 330 W 42nd St. New York 18. N. Y.
Photovolt Corp. 95 Madison Ave. New York 16. N. Y.
Taylor. W A & Co. 7300 York Road. Baltimore 4. Md.

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Bristol Co. Waterbury 91. Conn.
Buffalo Meter Co. 2917 Main St. Buffalo 14. N. Y.
Builders-Providence, Inc. 345 Harris Ave. Providence 1. R. I.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Fischer & Porter Co. 500 County Line Rd. Hatboro. Pa.
Hays Corp. 742 E 8th St. Michigan City. Ind.
Hennsey Co. 202½ Water St. Watertown. Wis.
Pennsylvania Industrial Instr Co. 3116 N 17th St. Philadelphia. Pa.
Refinite Corp. Box 1312. Omaha. Nebr.
Republic Flow Meters Co. 2222 Diversey Parkway. Chicago 47. Ill.
Simplex Valve & Meter Co. 6870 Upland St. Philadelphia 42. Pa.
Worthington Pump & Machinery Corp. Harrison. N. J.

METERS, WATT-HOUR

General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Roller-Smith. 1756 W Market St. Bethlehem. Pa.
Sangamo Electric Co. Springfield. Ill.
Sticht. Herman H Co. 27 Park Place. New York 7. N. Y.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

MOTOR-GENERATORS

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Allis. Louis Co. 427 E Stewart St. Milwaukee 7. Wis.
Belco Industrial Equip Div Inc. 52 Iowa Ave. Paterson 3. N. J.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Burke Electric Co. 12th & Cranberry Sts. Erie. Pa.
Century Electric Co. 1806 Pine St. St Louis 3. Mo.
Columbia Electric Mfg Co. 4519 Hamilton Ave. Cleveland 14. Ohio
Diehl Mfg Co. 1142 Finderne Ave. Somerville. N. J
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13. Minn.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12. Ohio
Electro-Dynamic Div. Electric Boat Co. Bayonne. N. J.
Elliott Co. Jeannette. Pa.
Fairbanks. Morse & Co. Fairbanks-More Bldg. Chicago 5. Ill.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Hanson-Van Winkle-Munning Co. Church St. Matawan. N. J.
Hendy. Joshua. Iron Wks. Sunnyvale. Calif.
Hobart Bros Co. Hobart Square. Troy 1. Ohio
Holtzer-Cabot Div National Pneumatic Co. 125 Amory St. Boston 19. Mass.
Ideal Electric & Mfg Co. E First St. Mansfield. Ohio
Kato Engineering Co. 122 Maxfield St. Mankato. Minn.
Onan. D W & Sons. Inc. University Ave. S E at 25th. Minneapolis 14. Minn.
Reliance Electric & Engrg Co. 1068 Ivanhoe Rd. Cleveland 10. Ohio
Robbins & Myers inc. 1345 Lagonda Ave. Springfield. Ohio
Star-Kimble Motor Div. 200 Bloomfield Ave. Bloomfield. N. J.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

MOTOR STARTERS, AC, DC

Allen-Bradley Co. 1326 S 2nd St. Milwaukee 4. Wis.
Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Arrow-Hart & Hegeman Electric Co. 103 Hawthorn St. Hartford 6. Conn.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Clark Controller Co. 1146 E 152nd St. Cleveland 10. Ohio
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1. N. Y.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1. Wis.
Electric Controller & Mfg Co. 2700 E 79 St. Cleveland 4. Ohio
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13. Minn.
Federal Electric Products Co Inc. 50 Paris St. Newark 5. N. J.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Ideal Electric & Mfg Co. E First St. Mansfield. Ohio
Minneapolis-Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Penn Electric Switch Co. Goshen. Ind.
Square D Co. 4041 N Richards St. Milwaukee 12. Wis.
Trumbull Electric Mfg Co. 41 Woodford Ave. Plainville. Conn.
U S Electrical Motors. 200 E Slauson Ave. Los Angeles 54. Calif.
Ward Leonard Electric Co. 100 South St. Mt Vernon. N. Y.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

MOTORS, AC

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Allis. Louis Co. 427 E Stewart St. Milwaukee 7. Wis.
Atlantic Gear Wks. 200 Lafayette St. New York 12. N. Y.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Burke Electric Co. 12th & Cranberry Sts. Erie. Pa.
Century Electric Co. 1806 Pine St. St Louis 3. Mo.
Delco Products Div. General Motors Corp. 329 E First St. Dayton 1. Ohio
Diehl Mfg Co. 1142 Finderne Ave. Somerville. N. J.
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13. Minn.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12. Ohio
Electro-Dynamic Div. Electric Boat Co. Bayonne. N. J.
Elliott Co. Jeannette. Pa.
Fairbanks. Morse & Co. Fairbanks-Morse Bldg. Chicago 5. Ill.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Ideal Electric & Mfg Co. E First St. Mansfield. Ohio
Kato Engineering Co. 122 Maxfield St. Mankato. Minn.
LeTourneau. R G. Inc. Peoria. Ill.
Lima Electric Motor Co. Findlay Rd. Lima. Ohio
Raytheon Mfg Co. Waltham 54. Mass.
Reliance Elec & Engrg Co. 1068 Ivanhoe Rd. Cleveland 10. Ohio
Robbins & Myers Inc. 1345 Lagonda Ave. Springfield. Ohio
Smith. A O Corp. 3533 N 27th St. Milwaukee 1. Wis.
Star-Kimble Motor Div. 200 Bloomfield Ave. Bloomfield. N. J.
Sterling Electric Motors Inc. 5401 Anaheim-Telegraph Rd. Los Angeles 22. Calif.
U S Electrical Motors. 200 E Slauson Ave. Los Angeles 54. Calif.
Wagner Electric Corp. 6400 Plymouth Ave. St Louis 14. Mo.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

MOTORS, ADJUSTABLE SPEED, VARIABLE SPEED

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Allis. Louis Co. 427 E Stewart St. Milwaukee 7. Wis.
Atlantic Gear Wks. 200 Lafayette St. New York 12. N. Y.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Burke Electric Co. 12th & Cranberry Sts. Erie. Pa.
Century Electric Co. 1806 Pine St. St Louis 3. Mo.
Diehl Mfg Co. 1142 Finderne Ave. Somerville. N. J.
Dynamatic Corp. 3307-14th Ave. Kenosha. Wis.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12. Ohio
Electro-Dynamic Div. Electric Boat Co. Bayonne. N. J.
Elliott Co. Jeannette. Pa.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Holtzer-Cabot Div. National Pneumatic Co. 125 Amory St. Boston 19. Mass.
Ideal Elec & Mfg Co. E First St. Mansfield. Ohio
Kato Engineering Co. 122 Maxfield St. Mankato. Minn.
Lima Electric Motor Co. Findlay Rd. Lima. Ohio
Link-Belt Co. 2045 W Hunting Park Ave. Philadelphia 40. Pa.
Raytheon Mfg Co. Waltham 54. Mass.
Reeves Pulley Co. Columbus. Ind.
Reliance Electric & Engrg Co. 1068 Ivanhoe Rd. Cleveland 10. Ohio
Star-Kimble Motor Div. 200 Bloomfield Ave. Bloomfield. N. J.
Sterling Electric Motors Inc. 5401 Anaheim-Telegraph Rd. Los Angeles 22. Calif.
U S Electrical Motors. 200 E Slauson Ave. Los Angeles 54. Calif.
Vickers Inc. 1596 Oakman Blvd. Detroit 32. Mich.
Wagner Electric Corp. 6400 Plymouth Ave. St Louis 14. Mo.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

MOTORS, DC

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Allis. Louis Co. 427 E Stewart St. Milwaukee 7. Wis.
Atlantic Gear Wks. 200 Lafayette St. New York 12. N. Y.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Burke Electric Co. 12th & Cranberry Sts. Erie. Pa.
Century Electric Co. 1806 Pine St. St Louis 3. Mo.
Diehl Mfg Co. 1142 Finderne Ave. Somerville. N. J.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12. Ohio
Electro-Dynamic Div. Electric Boat Co. Bayonne. N. J.
Elliott Co. Jeannette. Pa.
Fairbanks. Morse & Co. Fairbanks-Morse Bldg. Chicago 5. Ill.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Hendy. Joshua. Iron Wks. Sunnyvale. Calif.
Holtzer-Cabot Div. National Pneumatic Co. 125 Amory St. Boston 19. Mass.
Ideal Electric & Mfg Co. E First St. Mansfield. Ohio
Kato Engineering Co. 122 Maxfield St. Mankato. Minn.
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Star-Kimble Motor Div. 200 Bloomfield Ave. Bloomfield. N. J.
U S Electrical Motors. 200 E Slauson Ave. Los Angeles 54. Calif.
Wagner Electric Corp. 6400 Plymouth Ave. St Louis 14. Mo.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

MOTORS, FRACTIONAL HP

Atlantic Gear Wks. 200 Lafayette St. New York 12. N. Y.
Belco Industrial Equip Div Inc. 52 Iowa Ave. Paterson 3. N. J.
Burke Electric Co. 12th & Cranberry Sts. Erie. Pa.
Century Electric Co. 1806 Pine St. St Louis 3. Mo.
Delco Products Div. General Motors Corp. 329 E First St. Dayton 1. Ohio
Diehl Mfg Co. 1142 Finderne Ave. Somerville. N. J.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Holtzer-Cabot Div. National Pneumatic Co. 125 Amory St. Boston 19. Mass.
Lima Electric Motor Co. Findlay Rd. Lima. Ohio
Raytheon Mfg Co. Waltham 54. Mass.
Robbins & Myers Inc. 1345 Lagonda Ave. Springfield. Ohio
Smith. A O Corp. 3533 N 27th St. Milwaukee 1. Wis.
Wagner Electric Corp. 6400 Plymouth Ave. St Louis 14. Mo.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

MOTORS, INDUCTION

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Allis. Louis Co. 427 E Stewart St. Milwaukee 7. Wis.
Atlantic Gear Wks. 200 Lafayette St. New York 12. N. Y.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Burke Electric Co. 12th & Cranberry Sts. Erie. Pa.
Century Electric Co. 1806 Pine St. St Louis 3. Mo.
Delco Products Div General Motors Corp. 329 E First St. Dayton 1. Ohio
Diehl Mfg Co. 1142 Finderne Ave. Somerville. N. J.
Eclipse-Pioneer Div. Bendix Aviation Corp. Teterboro. N. J.
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13. Minn.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12. Ohio
Electro-Dynamic Div. Electric Boat Co. Bayonne. N. J.
Elliott Co. Jeannette. Pa.
Fairbanks. Morse & Co. Fairbanks-Morse Bldg. Chicago 5. Ill.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Holtzer-Cabot Div. National Pneumatic Co. 125 Amory St. Boston 19. Mass.
Ideal Electric & Mfg Co. E First St. Mansfield. Ohio
Lima Electric Motor Co. Findlay Rd. Lima. Ohio
Reliance Electric & Engrg Co. 1068 Ivanhoe Rd. Cleveland 10. Ohio
Smith. A O Corp. 3533 N 27th St. Milwaukee 1. Wis.
Star-Kimble Motor Div. 200 Bloomfield Ave. Bloomfield. N. J.
Sterling Electric Motors Inc. 5401 Anaheim-Telegraph Rd. Los Angeles 22. Calif.
US Electrical Motors. 200 E Slauson Ave. Los Angeles 54. Calif.
Wagner Electric Corp. 6400 Plymouth Ave. St Louis 14. Mo.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

MOTORS, SYNCHRONOUS

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Atlantic Gear Wks. 200 Lafayette St. New York 12. N. Y.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Burke Electric Co. 12th & Cranberry Sts. Erie. Pa.
Century Electric Co. 1806 Pine St. St. Louis 3. Mo.
Columbia Electric Mfg Co. 4519 Hamilton Ave. Cleveland 14. Ohio
Eclipse-Pioneer Div. Bendix Aviation Corp. Teterboro. N. J.
Electric Machy Mfg Corp. 1331 NE Tyler St. Minneapolis 13. Minn.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12. Ohio
Elliott Co. Jeannette. Pa.
Fairbanks. Morse & Co. Fairbanks-Morse Bldg. Chicago 5. Ill.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Hendy. Joshua Iron Wks. Sunnyvale. Calif.
Holtzer-Cabot Div. National Pneumatic Co. 125 Amory St. Boston 19. Mass.
Ideal Electric & Mfg Co. E First St. Mansfield. Ohio
Smith. A O. Corp. 3533 N 27th St. Milwaukee 1. Wis.
U S Electrical Motors. 200 E Slauson Ave. Los Angeles 54. Calif.
Wagner Electric Corp. 6400 Plymouth Ave. St Louis 14. Mo.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

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Fluor Corp. Ltd. 2500 S Atlantic Blvd. Los Angeles 22. Calif.
Industrial Sound Control Inc. 45 Granby St. Hartford. Conn.
Maxim Silencer Co 85 Homestead Ave. Hartford 1. Conn.
Wright-Austin Co. 3245 Wight St. Detroit 7. Mich.

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Automatic Sprinkler Corp of America. Jones & Brittain Sts. Youngstown 1. Ohio
Bahnson Co. 1001 S Marshall St. Winston-Salem N. C.
Binks Mfg Co. 3114-40 Carrol Ave. Chicago 12. Ill.
Boston Woven Hose & Rubber Co. P O Box 1071. Cambridge. Mass.
Buffalo Forge Co. 488 Broadway. Buffalo 5. N. Y.
Carr. Clifford H. Co. 614 W 67th St. Kansas City 5. Mo.
Central Automatic Sprinkler Co. 4th & Cannon Ave. Lansdale. Pa.
Chain Belt Co. 1674 W Bruce St. Milwaukee 4. Wis.
Deister Concentrator Co. 901 Glasgow Ave. Ft Wayne 1. Ind.
De Vilbiss Co. 300 Phillips Ave. Toledo 1. Ohio
DoAll Co. Des Plaines. Ill.
Eddington Metal Specialty Co. P O Box K. Eddington. Pa.
Farquhar. A B Co. York. Pa.
Fluor Corp Ltd. 2500 S Atlantic Blvd. Los Angeles 22. Calif.
Grinnell Co Inc. 260 W Exchange St. Providence 1. R. I.
Johnson Mfg Co. Fox & Holly Sts. Seattle 8. Wash.
Link-Belt Co. 300 W Pershing Rd. Chicago 9. Ill.
Marley Co. Inc. 3001 Fairfax Rd. Kansas City 15. Kans.
Monarch Mfg Works. Inc. 2501 E Ontario St. Phila 34. Pa.
National Airoil Burner Co. 1276 E Sedgley Ave. Philadelphia 34. Pa.
Phillips Cooling Tower Co Inc. 114 Liberty St. NYC 6. N. Y.
Power Piping Div. Blaw-Knox Co. 1525 Pennsylvania Ave. Pittsburgh 12. Pa.
Pritchard. J F & Co. 906 Grand Ave. Kansas City 6. Mo.
Rockwood Sprinkler Co. 38 Harlow St. Worcester 5. Mass.
Schutte & Koerting Co. Cornwells Heights. Bucks County. Pa.
Spraying Systems Co. 3201 Randolph St. Bellwood. Ill.
Supreme Electric Products Corp. 194 Varaar St. Rochester 7. N. Y.
Water Cooling Equip Corp. New Hampshire & Webster Rd. St Louis 23. Mo.
Yarnall-Waring Co. Chestnut Hill. Philadelphia 18. Pa.

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Bigelow Liptak Corp. 2842 W Grand Blvd. Detroit 2. Mich.
Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22. Ill.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Denver Fire Clay Co. P O Box 5510. Denver 17. Colo.
Detroit Stoker Co. 5-125 General Motors Bldg. Detroit 2. Mich.
Engineer Co. 75 West St. New York 6. N. Y.
Green. A P. Fire Brick Co. Mexico. Mo.
International Combustion Corp. 436 Pearl St. New York. N. Y.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
National Airoil Burner Co. 1276 E Sedgley Ave. Philadelphia 34. Pa.
Plibrico Jointless Firebrick Co 1800 Kinsbury St. Chicago 14. Ill.
Ramtite Co. 2549 W 18th St. Chicago 8. Ill.
Reintjes. Geo P. Co. 2517 Jefferson St. Kansas City. Mo.
Sims Co. 1402 E 16th St. Erie. Pa.

OHMMETERS

Associated Research Inc. 3758 W Belmont Ave. Chicago 18. Ill.
Biddle. James G Co. 1316 Arch St. Philadelphia 7. Pa.
Esterline-Angus Co Inc. 1201 Main St. Indianapolis 6. Ind.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co. 420 Lexington Ave. N. Y. 17. N. Y.
Simpson Electric Co. 5200 W Kinzie. Chicago 44. Ill.
Sticht. Herman H. Co. 27 Park Pl. New York 7. N. Y.
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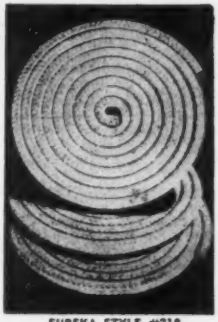

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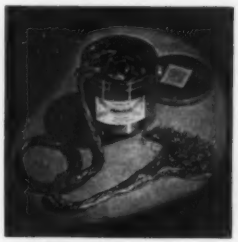

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Darcold Co. Inc. 145 Sixth Ave. New York 13. N. Y.
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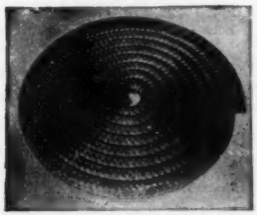

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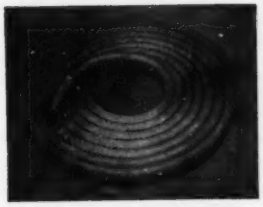

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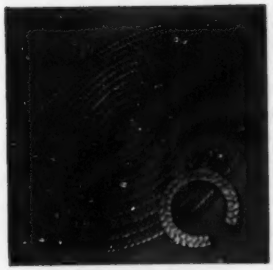

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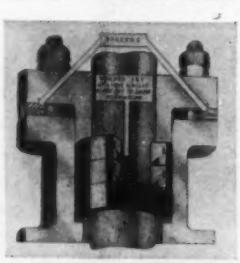

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Bergen Point Iron Wks. Foot of W 5th St. Bayonne, N. J.
Central Automatic Sprinkler Co. 4th & Cannon Ave. Lansdale, Pa.
Clow, James B. & Sons. 201-299 N Talman Ave. Chicago 12, Ill.
Crane Co. 836 S Michigan Ave. Chicago 5, Ill.
Division Lead Co. 836 W Kinzie St. Chicago 22, Ill.
Dravo Corp. Dravo Bldg. Pittsburgh 22, Pa.
Fiori Pipe Co. 601 E Red Bud Ave. St Louis, Mo.
Frick Co. W Main St. Waynesboro, Pa.
Grinnell Co. Inc. 260 W Exchange St. Providence 1, R. I.
Kellogg, M W Co 225 Broadway, New York 7, N. Y.
Kirk & Blum Mfg Co. 2874 Spring Grove Ave. Cincinnati 25, Ohio
Koven, L O & Brother, Inc. 154 Ogden Ave. Jersey City 7, N. J.
Midwest Piping & Supply Co Inc, 2nd & Miller Sts. St Louis 4, Mo.
Mitchell W K & Co. 2940 Ellsworth St. Philadelphia 46, Pa.
Murray, A B Co. Inc. 608 Green Lane, Elizabeth, N. J.
National Valve & Mfg Co. 3102 Liberty Ave. Pittsburgh 1, Pa.
Naylor Pipe Co. 1230 E 92nd St. Chicago 19, Ill.
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1, Pa.
Power Piping Div. Blaw-Knox Co. 1525 Pennsylvania Ave. Pittsburgh 12, Pa.
Pritchard, J F & Co. 908 Grand Ave. Kansas City 6, Mo.
Ric-Wil Co. 1052 Union Commerce Bldg. Cleveland, Ohio
Shaw, Benjamin F Co. 2nd & Lombard St. Wilmington 99, Del.
Steel Products Corp. 52 Vanderbilt Ave. New York 17, N. Y.
Titusville Iron Works Co. Titusville, Pa.
Walworth Co. 60 E 42nd St. New York 17, N. Y.
Whitlock Mfg Co. 46 South St. Hartford 10, Conn.

PISTONS, PISTON PINS, RINGS

Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Frick Co. W Main St. Waynesboro, Pa.
Holmes, Robert, & Bros, Danville, Ill.
Johnson Mfg Co. Fox & Holly Sts. Seattle 8, Wash.
McQuay-Norris Mfg Co. 2320 Marconi St. St Louis 10, Mo.

PLATES, FLOOR

American Abrasive Metals Co. 480 Colt St. Irvington, N. J.
American Car & Foundry Co. 30 Church St. N. Y. 7, N. Y.
Bergen Point Iron Works. Ft of W 5th St. Bayonne, N. J.
Carnegie-Illinois Steel Corp. 434 Fifth Ave. Pittsburgh 30, Pa.
Chase Brass & Copper Co. 236 Grand St. Waterbury 20, Conn.
Grinnell Co Inc. 260 W Exchange St. Providence 1, R. I.
Inland Steel Co. 38 S Dearborn St. Chicago 3, Ill.
Jarecki Valve Div. 1150 N Peoria. Tulsa, Okla.
Jones & Laughlin Steel Corp. 3rd Ave & Ross St. Pittsburgh 30, Pa.
Klemp, Wm F, Co. 6601 S Melvina Ave. Chicago 38, Ill.
Murray, A B Co. Inc. 608 Green Lane, Elizabeth, N. J.
Sexauer, J A. Mfg Co. 2503 3rd Ave. New York 51, N. Y.
Tennessee Coal, Iron & RR Co. U S Steel Sub. Brown Marx Bldg. Birmingham, Ala.

PLUGS, FUSIBLE

Boiler Tube Co of America. McKees Rocks, Pa.
Chiksan Co. 330 N Pomona Ave. Brea, Calif.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17, N. Y.
Lunkenheimer Co. P O Box 360. Annex Station, Cincinnati 14.
Murray, A B Co. Inc. 608 Green Lane, Elizabeth, N. J.
Powell, Wm Co. 2525 Spring Grove Ave. Cincinnati 22, Ohio
Pyle-National Co. 1334 N Kostner Ave. Chicago 51, Ill.
Rockwood Sprinkler Co. 38 Harlow St. Worcester 5, Mass.
Sherman, H B, Mfg Co. 22 Barney, Battle Creek, Mich.
Wallace & Tiernan, 1 Main St. Belleville 9, N. J.
Walworth Co. 60 E 42nd St. New York 17, N. Y.

PLUGS, TUBE, BOILER, CONDENSER

Boiler Tube Co of America. McKees Rocks, Pa.
Chase Brass & Copper Co. 236 Grand St. Waterbury 20, Conn.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Murray, A B Co. Inc. 608 Green Lane, Elizabeth, N. J.
Sexauer, J A. Mfg Co. 2503 3rd Ave. New York 51, N. Y.

PLUNGERS, PUMP

Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Lapp Insulator Co. Inc. 150 Maple St. Le Roy, N. Y.
Madden, P E & Co. 352 W Walton St. Chicago 10, Ill.
Milton Roy Co. 1305 E Mermaid Lane. Philadelphia 18, Pa.

POTENTIOMETERS

Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Bristol Co. Waterbury 91, Conn.
Cambridge Instrument Co Inc. 3007 Grand Central Terminal. New York 17, N. Y.
General Electric Co. Schenectady 5, N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17, N. Y.
International Resistance Co. 401 N Broad St. Philadelphia 8, Pa.
Leeds & Northrup Co. 4970 Stenton Ave. Philadelphia 44, Pa.
Mallory, P R & Co Inc. 3029 E Washington St. Indianapolis 6
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44, Pa.
Ohmite Mfg Co. 4835 W Flourney St. Chicago 44, Ill.
Tagliabue, C J Mfg Co. 614 Frelinghuysen Ave. Newark 5, N. J.
Ward Leonard Electric Co. 100 South St. Mount Vernon, N. Y.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5, N. J.
Wheelco Instruments Co. 847 W Harrison St. Chicago 7, Ill.

PREHEATERS, AIR

Air Preheater Corp. 60 E 42nd St. New York 17, N. Y.
Alberger Heater Co. 280 Chicago St. Buffalo 4, N. Y.
American Locomotive Co. Schenectady 5, N. Y.
Babcock & Wilcox Co. 85 Liberty St. New York 6, N. Y.
Brown Fintube Co. Elyria, Ohio
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16, N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Davis Engrg Corp. 1064 E Grand Blvd. Elizabeth 4, N. J.
Doyle & Roth Mfg Co. 136-50 24th St. Brooklyn, N. Y.
Edge Moor Iron Wks. Inc. 100 Edge Moor St. Edge Moor, Del.
Erie City Iron Wks. 1422 East Ave. Erie, Pa.
Foster Wheeler Corp. 165 Broadway, New York 6, N. Y.
Goodyear Industries. 224 S Michigan Ave. Chicago 4, Ill.
Green Fuel Economizer Co Inc. 627 Main St. Beacon, N. Y.
Griscom-Russell Co. 285 Madison Ave. New York 17, N. Y.
Hynes Elec Heating & Process Div. 1815 W Sedgley Ave. Phila, Pa.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave, N. Y. 16, N. Y.
Lients, B P, Mfg Co. 210 W 8th St. Kansas City, Mo.
Lummus Co. 385 Madison Ave. New York 17, N. Y.
McQuay Inc. 1600 Broadway St. N E. Minneapolis 13, Minn.
National Airoil Burner Co. 1276 E Sedgley Ave. Philadelphia 34, Pa.
Newcomb-Detroit Co. 5741 Russell St. Detroit 11, Mich.
Patterson-Kelley Co. Inc. 129 Burson St. East Stroudsburg, Pa.
Prat-Daniel Corp. 2 Meadow St. South Norwalk, Conn.

Riley Stoker Corp. 9 Neponset St. Worcester, Mass.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield, Ill.
Thermix Corp. Greenwich, Conn.
Titusville Iron Works Co. Titusville, Pa.
Trane Co., LaCrosse, Wis.
Union Iron Works, 1420 Cascade St. Erie, Pa.
Whitlock Mfg Co. 46 South St. Hartford 10, Conn.
Wickes Boiler Co. 515 N Washington Ave. Saginaw, Mich.
Young Radiator Co. 709 S Marquette St. Racine, Wis.

PSYCHROMETERS

Bristol Co. Waterbury 91, Conn.
Cambridge Instrument Co Inc. 3007 Grand Central Terminal. New York 17, N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Foxboro Co. 38 Neponset Ave. Foxboro, Mass.
Johnson Service Co. 507 E Michigan St. Milwaukee 2, Wis.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44, Pa.
Precision Thermom & Instr Co. 1401 Brandywine St. Phila. Pa.
Tagliabue, C J Mfg Co. 614 Frelinghuysen Ave. Newark 5. N. J.
Taylor Instrument Cos. 95 Ames St. Rochester 1, N. Y.
Velan Engrg Co. 1216 Drummond St. Montreal, P. Q., Canada

PULLEYS, MAGNETIC

Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1, Wis.
Continental Gin Co. 4500 5th Ave S. Birmingham 2, Ala.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1. Wis.
Dings Magnetic Separator Co. 4740 W Electric St. Milwaukee 14, Wis.
Eriez Mfg Co. 420 Commerce Bldg. Erie, Pa.
Stearns Magnetic Mfg Co. 657 S 28th St. Milwaukee, Wis.

PULLEYS, TRANSMISSION

American Pulley Co. 4200 Wissahickon Ave. Phila 29, Pa.
Atlantic Gear Wks. 200 Lafayette St. New York 12, N. Y.
Bartlett, C O & Snow Co. 6200 Harvard Ave. Cleveland 5, Ohio
Bond, Charles Co. 617-623 Arch St. Philadelphia 6, Pa.
Boston Gear Wks. 14 Hayward St. Quincy 71, Mass.
Continental Gin Co. 4500 S 5th Ave. Birmingham 2, Ala.
Corrigan, J C, Co Inc. 41-47 Norwood St. Boston 22, Mass.
Dayton Rubber Co. 2342 W Riverview Ave. Dayton 1, Ohio
Dick, R & J Co Inc. 28 Sade St. Passaic, N. J.
Dodge Mfg Corp. Mishawaka, Ind.
Filer & Stowell Co. 147 E Becher St. Milwaukee 7, Wis.
Gates Rubber Co. 990 S Broadway. Denver 17, Colo.
General Regulator Corp. 165 Broadway. New York 6, N. Y.
Jeffrey Mfg Co. 932 N Fourth St. Columbus 16, Ohio
Jones, W A Foundry & Machine Co. 4401 Roosevelt Rd. Chicago 24, Ill.
Link-Belt Co. 300 W Pershing Rd. Chicago 9, Ill.
Lovejoy Flexible Coupling Co. 5098 W Lake St. Chicago 44, Ill.
McNally Pittsburg Mfg Corp. Pittsburg, Kans.
Medart Co. 100 Potomac St. St Louis 18, Mo.
Mercon Regulator Co. 2357 N 29th St. Milwaukee 10, Wis.
Rockwood Mfg Co. Inc. 1801 English Ave. Indianapolis 6, Ind.
Schieren, Chas A Co. 30 Ferry St. New York 38, N. Y.
Sprout, Waldron & Co. Muncy, Pa.
Wood's, T B Sons Co. Fifth Ave. Chambersburg, Pa.
Worthington Pump & Machinery Corp. Harrison, N. J.

PULVERIZERS, COAL

Babcock & Wilcox Co. 85 Liberty St. New York 6, N. Y.
Bartlett, C O & Snow Co. 6200 Harvard Ave. Cleveland 5, Ohio
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16, N. Y.
Erie City Iron Wks. 1422 East Ave. Erie, Pa.
Foster Wheeler Corp. 165 Broadway. New York 6, N. Y.
Hardinge Co. Inc. 240 Arch St. York, Pa.
Heyl & Patterson Inc. 55 Water St. Pittsburgh 22, Pa.
Jeffrey Mfg Co. 932 N Fourth St. Columbus 16, Ohio
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16, N. Y.
Power Piping Div. Blaw-Knox Co. 1525 Pennsylvania Ave. Pittsburgh 12, Pa.
Riley Stoker Corp. 9 Neponset St. Worcester, Mass.
Silent Hoist & Crane Co. 841 63rd St. Brooklyn 20, N. Y.
Sims Co. 1402 E 18th St. Erie, Pa.
Strong-Scott Mfg Co. Northwestern Terminal. Minneapolis 13, Minn.
Sturtevant Mill Co. 71 Harrison Sq. Boston 22, Mass.
Williams Patent Crusher Co. 813 Montgomery, St. Louis, Mo.

PUMPING AND HEATING SYSTEMS, FUEL OIL

American-Marsh Pumps Inc. 99 Capitol Ave. N E. Battle Creek. Mich.
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Bell & Gossett Co. 8200 N Austin Ave. Morton Grove. Ill.
Coen Co. 40 Boardman Place. San Francisco 3. Calif.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Davis Engrg Corp. 1064 E Grand St. Elizabeth 4. N. J.
Engineer Co. 75 West St. New York 6. N. Y.
Faber Engrg Co. Amber & Westmoreland Sts. Phila 34. Pa.
Granberg Corp. 1308 67th St. Oakland 8. Calif.
Hammel Oil Burning Equip Co. 50 Allepo St. Providence 3. R. I.
International Combustion Corp. 436 Pearl St. New York. N. Y.
Leahy Mfg Co. 1804 E 8th St. Los Angeles 21. Calif.
Lients, B P, Mfg Co. 210 W 8th St. Kansas City, Mo.
Lockett, A M & Co. Ltd. Whitney Bldg. New Orleans 7, La.
Peabody Engrg Corp. 580 Fifth Ave. New York 19. N. Y.
Ray Oil Burner Co. 401 Bernal Ave. San Francisco 12. Calif.
Schutte & Koerting Co. Cornwells Heights. Bucks County, Pa.
Staples & Pfeiffer. 528 Bryant St. San Francisco 7. Calif.
Todd Shipyards Corp. Combustion Equip Div. 6116 45th Ave. Elmhurst. N. Y.
Viking Pump Co. 4th & Miller Sts. Cedar Falls, Iowa

PUMPS, BOILER FEED, HIGH PRESSURE

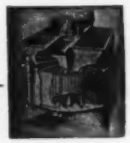
Aldrich Pump Co. 3 Gordon St. Allentown. Pa.
Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
American-Marsh Pump Inc. 99 Capitol Ave. N E. Battle Creek. Mich.
Aurora Pump Co. 616 Loucks St. Aurora. Ill.
Buffalo Pumps. Inc. 490 Broadway. Buffalo 5. N. Y.
Byron Jackson Co. P O Box 2017. Terminal Annex. Los Angeles 54. Calif.
Chicago Pump Co. 2300 Wolfram St. Chicago 18. Ill.
Coffin, J S. Jr. Co. 326 S Dean St. Englewood. N. J.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Davidson. M T Co. 154 Nassau St. New York 7. N. Y.
Dean Bros Pumps Inc. 323 W 10th St. Indianapolis 7. Ind.
Dearborn Chemical Co. Merchandise Mart Plaza. Chicago 54. Ill.
DeLaval Steam Turbine Co. Trenton 2. N. J.
Eclipse Fuel Engrg Co. 711 S Main St. Rockford. Ill.
Fairbanks. Morse & Co. Fairbanks-Morse Bldg. Chicago 5. Ill.
Gardner-Denver Co. Quincy. Ill.
Goulds Pumps. Inc. 300 Fall St. Seneca Falls. N. Y.
Hapman-Dutton Co. 622 Gibson St. Kalamazoo 11. Mich.
Hills-McCanna Co. 2456 W Nelson St. Chicago 18. Ill.
Hoffman Specialty Co. 1001 York St. Indianapolis 7. Ind.
Ingersoll-Rand Co. 11 Broadway. New York 4. N. Y.
Lapp Insulator Co. Inc. 150 Maple St. Le Roy. N. Y.
Lawrence Machine & Pump Corp. 371 Market St. Lawrence. Mass.
Lawrence Pump & Engine Co. 1 Marston St. Lawrence. Mass.
Leahy Mfg Co. 1804 E 8th St. Los Angeles 21. Calif.
Lecourtenay Co. 9 Main St. Newark 5. N. J.
Pacific Pumps Inc. 5715 Bicket St. Huntington Park. Calif.
Peerless Pump Div. Food Machinery & Chemical Corp. 301 West Ave 26. Los Angeles 31. Calif.
Pennsylvania Pump & Compressor Co. Easton. Pa.
Roth. Roy E. Co. 2422 4th Ave. Rock Island. Ill.
Schaub. Fred H Engrg Co. 2110 S Marshall Blvd. Chicago 23. Ill.
Sterling Inc. 3713 N Holton St. Milwaukee 12. Wis.
Stout. David. & Sons. 7016 Manchester Blvd. St Louis 17. Mo.
Union Steam Pump Co. Battle Creek. Mich.
Voss Machine Works. 242 E 122nd St. New York. N. Y.
Warren Steam Pump Co Inc. 1234 Bridges Ave. Warren. Mass.
Weinman Pump Mfg Co. 290 Spruce St. Columbus 8. Ohio
Whittington Pump & Engrg Corp. 1126 Prospect St. Indianapolis 3. Ind.
Wilson-Snyder Mfg Div. U. S. Steel. Braddock. Pa.
Worthington Pump & Machinery Corp. Harrison. N. J.
Yeomans Brothers Co. 1446 N Dayton St. Chicago 22. Ill.

PUMPS, CENTRIFUGAL

Allen-Sherman-Hoff Co. 227 S 15th St. Phila 2. Pa.
Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
American Hydrotherm Co. 33-70 12 St. Long Island City 6. N. Y.
American Manganese Steel Div. Chicago Heights. Ill.
American-Marsh Pump Inc. 99 Capitol Ave. N E. Battle Creek. Mich.
American Well Wks. 100 N Broadway. Aurora. Ill.
Ampco Metal Inc. 1701 S 38th St. Milwaukee 4. Wis.
Atlantic Pump Corp. 4272 Wissahickon Ave. Philadelphia 32. Pa.
Aurora Pump Co. 616 Loucks St. Aurora. Ill.
Bell & Gossett Co. 8200 N Austin Ave. Morton Grove. Ill.
Buffalo Pumps. Inc. 490 Broadway. Buffalo 5. N. Y.
Bump Pump Co. 1830 West Ave S. La Crosse. Wis.
Byron Jackson Co. P O Box 2017. Terminal Annex. Los Angeles 54. Calif.
Carver Pump Co. Muscatine. Iowa
Chain Belt Co. 1874 W Bruce St. Milwaukee 4. Wis
Chicago Pump Co. 2300 Wolfram St. Chicago 18. Ill.
Cleco Div. Reed Roller Bit Co. 5125 Clinton Drive. Houston 20. Texas
Coffin. J S. Jr. Co. 326 S Dean St. Englewood. N. J.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Davidson. M T Co. 154 Nassau St. N. Y. 7. N. Y.
Dean Bros Pumps Inc. 323 W 10th St. Indianapolis 7. Ind.
DeLaval Steam Turbine Co. Trenton 2. N. J.
Deming Co. Salem. Ohio
Dunham. C A Co. 400 W Madison St. Chicago 6. Ill.
Eastern Industries Inc. 296 Elm St. New Haven 6. Conn.
Eclipse Fuel Eng Co. 711 S Main St. Rockford. Ill.
Economy Pumps Inc. 1000 Weller Ave. Hamilton. Ohio
Fairbanks. Morse & Co. Fairbanks-Morse Bldg. Chicago 5. Ill.
Gardner-Denver Co. Quincy. Ill.
Gorman-Rupp Co. 305 Bowman St. Mansfield. Ohio
Goulds Pumps. Inc. 300 Fall St. Seneca Falls. N. Y.
Ingersoll-Rand Co. 11 Broadway. New York 4. N. Y.
Lapp Insulator Co. Inc. 150 Maple St. Le Roy. N. Y.
Lawrence Machine & Pump Corp. 371 Market St. Lawrence. Mass.

LJUNGSTROM AIR PREHEATER

for higher boiler-plant heat recovery



Type V Ljungstrom Air Preheater for Vertical Flow of gas and air.

Type H Ljungstrom Air Preheater for Horizontal Flow of gas and air.

In high-efficiency steam-plant installations, the Ljungstrom air preheater is today more widely used than any other design. This is not only for the reason that it is capable of higher heat recoveries, but because it is compact, light in weight and most easily adaptable to space restrictions. It operates on the continuous regenerative counterflow principle and the form of its heating surface is such that unusually high rates of heat transfer are obtained in combination with relatively low gas and air resistances. The construction is simple and conducive to low maintenance and repair costs.

Air Preheater Corporation

Executive Offices:

60 East 42nd St., New York 17, N. Y.

Plant:

Wellsville, New York

Lawrence Pump & Engine Co, 1 Marston St, Lawrence, Mass.
McNally Pittsburg Mfg Corp, Pittsburg, Kans.
Marlow Pumps, Box 566, Ridgewood, N. J.
Nagle Pumps, 13th & North Center, Chicago Heights, Ill.
National Carbon Co, 30 E 42nd St, New York 17, N. Y.
Pacific Pumps Inc, 5715 Bicket St, Huntington Park, Calif.
Peerless Pump Div, Food Machinery & Chemical Corp, 301 West Ave 26, Los Angeles 31, Calif.
Pennsylvania Pump & Compressor Co, Easton, Pa.
Pomona Pump Co, Div Fairbanks-Morse, Pomona, Calif.
Smith, A O, Corp, 3533 N 27th St, Milwaukee 1, Wis.
Trane Co, LaCrosse, Wis.
Union Steam Pump Co, Battle Creek, Mich.
Warren Steam Pump Co Inc, 1234 Bridges Ave, Warren, Mass.
Well Pump Co, 1530 N Fremont St, Chicago 22, Ill.
Weinman Pump Mfg Co, 290 Spruce St, Columbus 8, Ohio
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
Wilson-Snyder Mfg Div, U. S. Steel, Braddock, Pa.
Worthington Pump & Machinery Corp, Harrison, N. J.
Yeomans Brothers Co, 1446 N Dayton St, Chicago 22, Ill.

PUMPS, CIRCULATING WATER

Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee 1, Wis.
American-Marsh Pump Inc, 99 Capitol Ave, N E Battle Creek, Mich.
American Well Wks, 100 N Broadway, Aurora, Ill.
Atlantic Pump Corp, 4272 Wissahickon Ave, Philadelphia 32, Pa.
Aurora Pump Co, 616 Loucks St, Aurora, Ill.
Bell & Gossett Co, 8200 N Austin Ave, Morton Grove, Ill.
Buffalo Pumps, Inc, 490 Broadway, Buffalo 5, N. Y.
Bump Pump Co, 1830 West Ave S, LaCrosse, Wis.
Byron Jackson Co, P O Box 2017, Terminal Annex, Los Angeles
Carver Pump Co, Muscatine, Iowa
Chicago Pump Co, 2300 Wolfram St, Chicago 18, Ill.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Davidson, M T Co, 154 Nassau St, New York 7, N. Y.
Dean Bros Pumps Inc, 323 W 10th St, Indianapolis 7, Ind.
DeLaval Steam Turbine Co, Trenton 2, N. J.
Deming Co, Salem, Ohio
Dunham, C A Co, 400 W Madison St, Chicago 6, Ill.
Eclipse Fuel Engrg Co, 711 S Main St, Rockford, Ill.
Economy Pumps Inc, 1000 Weller Ave, Hamilton, Ohio
Faber Engrg Co, Amber & Westmoreland Sts, Philadelphia 34, Pa.
Fairbanks, Morse & Co, Fairbanks-Morse Bldg, Chicago 5, Ill.
Foster Wheeler Corp, 165 Broadway, New York 6, N. Y.
Godfrey-Keeler Co, 1 Hudson St, New York 13, N. Y.
Goulds Pumps Inc, 300 Fall St, Seneca Falls, N. Y.
Hapman-Dutton Co, 622 Gibson St, Kalamazoo 11, Mich.
Hoffman Specialty Co, 1001 York St, Indianapolis 7, Ind.
Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.
Johnson Corp, 805 Wood St, Three Rivers, Mich.
Lawrence Machine & Pump Corp, 371 Market St, Lawrence, Mass.
Lawrence Pump & Engine Co, 1 Marston St, Lawrence, Mass.
Mund Boilers Inc, 1600 N Indiana St, Los Angeles 33, Calif.
Nash Engrg Co, 346 Wilson Rd, S Norwalk, Conn.
Pacific Pumps Inc, 5715 Bicket St, Huntington Park, Calif.
Peerless Pump Div, Food Machinery & Chemical Corp, 301 West Ave 26, Los Angeles 31, Calif.
Pennsylvania Pump & Compressor Co, Easton, Pa.
Pomona Pump Co, Fairbanks-Morse, Pomona, Calif.
Roth, Roy E, Co, 2422 4th Ave, Rock Island, Ill.
Schaub, Fred H Engrg Co, 2110 S Marshall Blvd, Chicago 23, Ill.
Sterling Inc, 3713 N Holton St, Milwaukee 12, Wis.
Stickle Steam Specialty Co, 2265 Valley Ave, Indianapolis 1, Ind.
Stout, David, & Sons, 7016 Manchester Blvd, St. Louis 17, Mo.
Trane Co, LaCrosse, Wis.
Union Steam Pump Co, Battle Creek, Mich.
Warren Steam Pump Co Inc, 1234 Bridges Ave, Warren, Mass.
Well Pump Co, 1530 N Fremont St, Chicago 22, Ill.
Weinman Pump Mfg Co, 290 Spruce St, Columbus 8, Ohio
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
Wheeler, C H, Mfg Co, Lehigh & Sedgley Aves, Philadelphia 32, Pa.
Whittington Pump & Engrg Corp, 1126 Prospect St, Indianapolis, 3, Ind.
Worthington Pump & Machinery Corp, Harrison, N. J.
Yeomans Brothers Co, 1446 N Dayton St, Chicago 22, Ill.

PUMPS, CONDENSATION RETURN

Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee 1, Wis.
American-Marsh Pumps Inc, 99 Capitol Ave, N E, Battle Creek, Mich.
Aurora Pump Co, 616 Loucks St, Aurora, Ill.
Buffalo Pumps, Inc, 490 Broadway, Buffalo 5, N. Y.
Carver Pump Co, Muscatine, Iowa
Chicago Pump Co, 2300 Wolfram St, Chicago 18, Ill.
Cochrane Corp, 17th St & Allegheny Ave, Philadelphia 32, Pa.
Coffin J S, Jr Co, 326 S Dean St, Englewood, N. J.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Davidson, M T Co, 154 Nassau St, New York 7, N. Y.
Dean Bros Pumps Inc, 323 W 10th St, Indianapolis 7, Ind.
DeLaval Steam Turbine Co, Trenton 2, N. J.
Deming Co, Salem, Ohio
Dunham, C A Co, 400 W Madison St, Chicago 6, Ill.
Eclipse Fuel Engrg Co, 711 S Main St, Rockford, Ill.
Economy Pumps Inc, 1000 Weller Ave, Hamilton, Ohio
Faber Engrg Co, Amber & Westmoreland Sts, Philadelphia 34, Pa.
Fairbanks, Morse & Co, Fairbanks-Morse Bldg, Chicago 5, Ill.
Foster Wheeler Corp, 165 Broadway, New York 6, N. Y.
Goulds Pumps Inc, 300 Fall St, Seneca Falls, N. Y.
Hapman-Dutton Co, 622 Gibson St, Kalamazoo 11, Mich.
Hoffman Specialty Co, 1001 York St, Indianapolis 7, Ind.
Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.
Johnson Corp, 805 Wood St, Three Rivers, Mich.
Lawrence Machine & Pump Corp, 371 Market St, Lawrence, Mass.
Lawrence Pump & Engine Co, 1 Marston St, Lawrence, Mass.
Mund Boilers Inc, 1600 N Indiana St, Los Angeles 33, Calif.
Nash Engrg Co, 346 Wilson Rd, S Norwalk, Conn.
Pacific Pumps Inc, 5715 Bicket St, Huntington Park, Calif.
Peerless Pump Div, Food Machinery & Chemical Corp, 301 West Ave 26, Los Angeles 31, Calif.
Pennsylvania Pump & Compressor Co, Easton, Pa.
Pomona Pump Co, Fairbanks-Morse, Pomona, Calif.
Roth, Roy E, Co, 2422 4th Ave, Rock Island, Ill.
Schaub, Fred H Engrg Co, 2110 S Marshall Blvd, Chicago 23, Ill.
Sterling Inc, 3713 N Holton St, Milwaukee 12, Wis.
Stickle Steam Specialty Co, 2265 Valley Ave, Indianapolis 1, Ind.
Stout, David, & Sons, 7016 Manchester Blvd, St. Louis 17, Mo.
Trane Co, LaCrosse, Wis.
Union Steam Pump Co, Battle Creek, Mich.
Warren Steam Pump Co Inc, 1234 Bridges Ave, Warren, Mass.
Well Pump Co, 1530 N Fremont St, Chicago 22, Ill.
Weinman Pump Mfg Co, 290 Spruce St, Columbus 8, Ohio
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
Wheeler, C H, Mfg Co, Lehigh & Sedgley Aves, Philadelphia 32, Pa.
Whittington Pump & Engrg Corp, 1126 Prospect St, Indianapolis, 3, Ind.
Worthington Pump & Machinery Corp, Harrison, N. J.
Yeomans Brothers Co, 1446 N Dayton St, Chicago 22, Ill.

PUMPS, DEEPWELL

American-Marsh Pumps Inc, 99 Capitol Ave, N E, Battle Creek, Mich.
American Well Wks, 100 N Broadway, Aurora, Ill.
Aurora Pump Co, 616 Loucks St, Aurora, Ill.
Byron Jackson Co, P O Box 2017, Terminal Annex, Los Angeles
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Davidson, M T Co, 154 Nassau St, New York 7, N. Y.
Deming Co, Salem, Ohio
Fairbanks, Morse & Co, Fairbanks-Morse Bldg, Chicago 5, Ill.
Johnston Pump Co, 2324 E 49th St, Los Angeles 11, Calif.
Layne & Bowler Inc, Box 6815, Hollywood Sta, Memphis 8, Tenn.
McKayr Co, 473 Cleveland Ave N, St Paul 4, Minn.
Peerless Pump Div, Food Machinery & Chemical Corp, 301 West Ave 26, Los Angeles 31, Calif.
Pomona Pump Co, Fairbanks-Morse Pomona, Calif.
Smith, A O, Corp, 3533 N 27th St, Milwaukee 1, Wis.
Well Pump Co, 1530 N Fremont St, Chicago 22, Ill.
Worthington Pump & Machinery Corp, Harrison, N. J.

PUMPS, DUPLEX

American-Marsh Pumps, Inc, 99 Capitol Ave, N E, Battle Creek, Mich.
Beach-Russ Co, 50 Church St, New York 7, N. Y.
Chicago Pump Co, 2300 Wolfram St, Chicago 18, Ill.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Dean Bros Pumps Inc, 323 W 10th St, Indianapolis 7, Ind.
Deming Co, Salem, Ohio
Dunham, C A, Co, 400 W Madison St, Chicago 6, Ill.
Fairbanks, Morse & Co, Fairbanks-Morse Bldg, Chicago 5, Ill.
Gardner-Denver Co, Quincy, Ill.
Hapman-Dutton Co, 622 Gibson St, Kalamazoo 11, Mich.
Hills-McCanna Co, 2456 W Nelson St, Chicago 18, Ill.
Lapp Insulator Co, Inc, 150 Maple St, Le Roy, N. Y.
Milton Roy Co, 1305 E Mermaid Lane, Philadelphia 18, Pa.
Novo Engine Co, 702 Porter St, Lansing 5, Mich.
Sterling Inc, 3713 N Holton St, Milwaukee 12, Wis.
Union Steam Pump Co, Battle Creek, Mich.
Warren Steam Pump Co, Inc, 1234 Bridges Ave, Warren, Pa.
Watson Stillman Co, 108 Aldene Road, Roselle, N. J.
Weinman Pump Mfg Co, 290 Spruce St, Columbus 8, Ohio
Wilson-Snyder Mfg Div, U. S. Steel, Braddock, Pa.
Worthington Pump & Machinery Corp, Harrison, N. J.
Yeomans Brothers Co, 1446 N Dayton St, Chicago 22, Ill.

PUMPS, FIRE

Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee 1, Wis.
American-Marsh Pumps Inc, 99 Capitol Ave, N E, Battle Creek, Mich.
Aurora Pump Co, 616 Loucks St, Aurora, Ill.
Buffalo Pumps Inc, 490 Broadway, Buffalo 5, N. Y.
Byron Jackson Co, P O Box 2017, Terminal Annex, Los Angeles 54, Chicago Pump Co, 2300 Wolfram St, Chicago 18, Ill.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Davidson, M T Co, 154 Nassau St, New York 7, N. Y.
DeLaval Steam Turbine Co, Trenton 2, N. J.
Economy Pumps Inc, 1000 Weller Ave, Hamilton, Ohio
Fairbanks, Morse & Co, Fairbanks-Morse Bldg, Chicago 5, Ill.
Gardner-Denver Co, Quincy, Ill.
Gorman-Rupp Co, 305 Bowman St, Mansfield, Ohio
Goulds Pumps, Inc, 300 Fall St, Seneca Falls, N Y.
Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.
Johnston Pump Co, 2324 E 49th St, Los Angeles 11, Calif.
Layne & Bowler Inc, Box 6815 Hollywood Sta, Memphis 8, Tenn.
Lecourtenay Co, 9 Main St, Newark 5, N. J.
Marlow Pumps, Box 566, Ridgewood, N. J.
Novo Engine Co, 702 Porter St, Lansing 5, Mich.
Peerless Pump Div, Food Machinery & Chemical Corp, 301 West Ave 26, Los Angeles 31, Calif.
Viking Pump Co, 4th & Miller Sts, Cedar Falls, Iowa
Warren Steam Pump Co Inc, 1234 Bridges Ave, Warren, Mass.
Worthington Pump & Machinery Corp, Harrison, N. J.
Yeomans Bros Co, 1446 N Dayton St, Chicago 22, Ill.

PUMPS, OIL

Alemite Div, Stewart-Warner Corp, 1826 Diversey Pkwy, Chicago 14, Ill.
American Engrg Co, Aramingo Ave, & Cumberland St, Phila 25, Pa.
American-Marsh Pumps Inc, 99 Capitol Ave, N E, Battle Creek, Mich.
Aurora Pump Co, 616 Loucks St, Aurora, Ill.
Beach-Russ Co, 50 Church St, New York 7, N. Y.
Blackhawk Mfg Co, 5325 W Rogers St, Milwaukee 1, Wis.
Blackmer Pump Co, 1904 Century S W, Grand Rapids 9, Mich.
Bowser Inc, Fort Wayne 2, Ind.
Bump Pump Co, 1830 West Ave S, LaCrosse, Wis.
Byron Jackson Co, P O Box 2017, Terminal Annex, Los Angeles 54
Chicago Pump Co, 2300 Wolfram St, Chicago 18, Ill.
Coffin J S, Jr Co, 326 S Dean St, Englewood, N. J.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Cooper-Bessemer Corp, Mt Vernon, Ohio
Davidson, M T Co, 154 Nassau St, New York 7, N. Y.
Dean Bros Pumps Inc, 323 W 10th St, Indianapolis 7, Ind.
DeLaval Steam Turbine Co, Trenton 2, N. J.
Deming Co, Salem, Ohio
Eastern Industries Inc, 296 Elm St, New Haven 6, Conn.
Eclipse Fuel Engrg Co, 711 S Main St, Rockford, Ill.
Eddington Metal Specialty Co, P O Box K, Eddington, Pa.
Faber Engrg Co, Amber & Westmoreland Sts, Phila 34, Pa.
Fairbanks Morse & Co, Fairbanks-Morse Bldg, Chicago 5, Ill.
Gorman-Rupp Co, 305 Bowman St, Mansfield, Ohio
Goulds Pumps, Inc, 300 Fall St, Seneca Falls, N. Y.
Granberg Corp, 1308 67th St, Oakland 8, Calif.
Gray Co Inc, 60 11th Ave, S E, Minneapolis 13, Minn.
Hills-McCanna Co, 2456 W Nelson St, Chicago 18, Ill.
Hinckley Technical Associates Inc, 15 Park Row, New York, N. Y.
Ingersoll-Rand Co, 11 Broadway, New York 4, N Y.
Kinney Mfg Co, 3529-41 Washington St, Boston 30, Mass.
Lapp Insulator Co, Inc, 150 Maple St, Le Roy, N. Y.
Lawrence Pump & Engine Co, 1 Marston St, Lawrence, Mass.
Lecourtenay Co, 9 Main St, Newark 5, N. J.
Le Roi Co, 1706 S 68th St, Milwaukee 14, Wis.
Lincoln Engrg Co, 5701 Natural Bridge Ave, St Louis 20, Mo.
Lunkenheimer Co, P O Box 360, Annex Station, Cincinnati 14, Ohio
Manzel Div, Frontier Industries Inc, 315 Babcock St, Buffalo 10, N. Y.
Marlow Pumps, Box 566, Ridgewood, N. J.
Nathan Mfg Co, 416 E 108 St, New York 29, N. Y.
National Airoil Burner Co, 1276 E Sedgley Ave, Philadelphia 34, Pa.
Nugent Wm W, & Co Inc, 402 N Hermitage Ave, Chicago 22, Ill.
Pacific Pumps Inc, 5716 Bicket St, Huntington Park, Calif.
Peerless Pump Div, Food Machinery & Chemical Corp, 301 West Ave 26, Los Angeles 31, Calif.
Petroleum Heat & Power Co, Stamford, Conn.
Pomona Pump Co, Fairbanks-Morse, Pomona, Calif.
Rockwell, W B Co, 200 Eliot St, Fairfield, Conn.

Roper, Geo D Corp, Blackhawk Park Ave, Rockford, Ill.
Roth, Roy E. Co. 2422 Fourth Ave. Rock Island, Ill.
Schutte & Koerting Co. Cornwells Heights, Bucks County, Pa.
Sier Bath Gear & Pump Co Inc. 9252 Hudson Blvd, North Bergen, N. J.
Staples & Pfeiffer, 528 Bryant St. San Francisco 7, Calif.
Todd Shipyards Corp. Combustion Equip Div, 8116 45th Ave, Elmhurst, N. Y.
Union Steam Pump Co. Battle Creek, Mich.
Vickers Inc. 1596 Oakman Blvd. Detroit 32, Mich.
Viking Pump Co, 4th & Miller Sts. Cedar Falls, Iowa
Warren Steam Pump Co Inc. 1234 Bridges Ave, Warren, Mass.
Waterbury Tool Div Vickers, Inc. 188 E Aurora St, Waterbury 67, Conn.
Weinman Pump Mfg Co. 290 Spruce St. Columbus 8, Ohio
Wilson-Snyder Mfg Div, U. S. Steel, Braddock, Pa.
Worthington Pump & Machinery Corp, Harrison, N. J.

PUMPS, PROPORTIONING

Bird-Archer Co. 400 Madison Ave. New York 17, N. Y.
Black Sivalls & Bryson, Inc. Power & Light Bldg, Kansas City 6, Mo.
Drew, E F & Co, 15 E 26 St. New York 10, N. Y.
Hills-McCanna Co. 2456 W Nelson St. Chicago 18, Ill.
Hinckley Technical Associates Inc. 15 Park Row, New York, N. Y.
Lapp Insulator Co, Inc. 150 Maple St, Le Roy, N. Y.
Madden, P E & Co, 352 W Walton St, Chicago 10, Ill.
Manzel Div, Frontier Industries Inc. 315 Babcock St. Buffalo 10, N. Y.
Milton Roy Co. 1305 E Mermaid Lane, Philadelphia 18, Pa.
Proportioneers Inc. 345 Harris Ave, Providence 1, R. I.
Robbins & Myers Inc. 1345 Lagonda Ave. Springfield, Ohio
Wallace & Tiernan, 1 Main St. Belleville 9, N. J.
Wright Chemical Corp. 617 W Lake St. Chicago 6, Ill.

PUMPS, ROTARY

American Engrg Co. Aramingo Ave & Cumberland St. Phila 25, Pa.
Beach-Russ Co. 50 Church St. New York 7, N. Y.
Blackmer Pump Co, 1904 Century S W, Grand Rapids 9, Mich.
Bowser Inc. Fort Wayne 2, Ind.
Bump Pump Co. 1830 West Ave S. LaCrosse, Wis.
Chicago Pump Co. 2300 Wolfram St. Chicago 18, Ill.
Dearborn Chemical Co. Merchandise Mart Plaza, Chicago 54, Ill.
DeLaval Steam Turbine Co, Trenton 2, N. J.
Deming Co. Salem, Ohio
Eastern Industries Inc. 296 Elm St. New Haven 6, Conn.
Eddington Metal Specialty Co. P O Box K, Eddington, Pa.
Fairbanks Morse & Co. Fairbanks-Morse Bldg, Chicago 5, Ill.
Frick Co, W Main St. Waynesboro, Pa.
Gerotor May Corp. Maryland & Oliver Sts, Baltimore 3, Md.
Gilbert & Barker Mfg Co. Cold Spring Ave. West Springfield, Mass.
Goulds Pumps, Inc. 300 Fall St. Seneca Falls, N. Y.
Granberg Corp. 1308 67th St. Oakland 8, Calif.
Hinckley Technical Associates Inc. 15 Park Row, New York, N. Y.
Kinney Mfg Co. 3529-41 Washington St. Boston 30, Mass.
Nash Engrg Co. 345 Wilson Rd. S Norwalk, Conn.
National Airoil Burner Co. 1276 E Sedgley Ave, Philadelphia 34, Pa.
Roots-Connersville Blower Corp. 900 W Mount St. Connersville, Ind.
Roper, Geo D Corp, Blackhawk Park Ave. Rockford, Ill.
Schutte & Koerting Co. Cornwells Heights, Bucks County, Pa.
Sier Bath Gear & Pump Co Inc. 9252 Hudson Blvd, North Bergen, N. J.
Viking Pump Co. 4th & Miller Sts. Cedar Falls, Iowa
Warren Steam Pump Co. Inc. 1234 Bridges Ave, Warren, Mass.
Watson Stillman Co. 108 Aldene Road, Roselle, N. J.
Worthington Pump & Machinery Corp, Harrison, N. J.

PUMPS, SIMPLEX

American-Marsh Pumps Inc. 90 Capitol Ave. N E Battle Creek, Mich.
Chicago Pump Co. 2300 Wolfram St. Chicago 18, Ill.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Davidson, M T Co. 154 Nassau St. New York 7, N. Y.
Dean Bros Pumps Inc. 323 W 10th St. Indianapolis 7, Ind.
Deming Co. Salem, Ohio
Dutton, C H Co. Portage & Gibson Sts, Kalamazoo, Mich.
Fairbanks, Morse & Co. Fairbanks-Morse Bldg, Chicago 5, Ill.
Hills-McCanna Co. 2369 Nelson St. Chicago 18, Ill.
Lapp Insulator Co, Inc. 150 Maple St, Le Roy, N. Y.
Milton Roy Co. 1305 E Mermaid Lane, Phila 18, Pa.
Sterling Inc. 3713 N Holton St. Milwaukee 12, Wis.
Union Steam Pump Co, Battle Creek, Mich.
Watson Stillman Co. 108 Aldene Rd. Roselle, N. J.
Wilson-Snyder Mfg Div, Oil Well Supply Co, Braddock, Pa.
Worthington Pump & Machy Corp, Harrison, N. J.

PUMPS, SUMP

Allen-Sherman-Hoff Co. 227 S 15th St. Philadelphia 2, Pa.
Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1, Wis.
American Manganese Steel Div, Chicago Heights, Ill.
American-Marsh Pumps Inc. 99 Capitol Ave. N E Battle Creek, Mich.
Aurora Pump Co. 616 Loucks St. Aurora, Ill.
Blackmer Pump Co. 1904 Century S W, Grand Rapids 9, Mich.
Buffalo Pumps, Inc. 490 Broadway, Buffalo 5, N. Y.
Byron Jackson Co. P O Box 2017, Terminal Annex, Los Angeles 54, Calif.
Carver Pump Co. Muscatine, Iowa
Chicago Pneumatic Tool Co. 6 E 44th St. New York 17, N. Y.
Chicago Pump Co. 2300 Wolfram St. Chicago 18, Ill.
Davidson, M T Co. 154 Nassau St. New York 7, N. Y.
Dean Bros Pumps Inc. 323 W 10th St. Indianapolis 7, Ind.
DeLaval Steam Turbine Co. Trenton 2, N. J.
Deming Co. Salem, Ohio
Eastern Industries Inc. 296 Elm St. New Haven 6, Conn.
Economy Pumps Inc. 1000 Weller Ave. Hamilton, Ohio
Fairbanks, Morse & Co. Fairbanks-Morse Bldg. Chicago 5, Ill.
Gardner-Denver Co. Quincy, Ill.
Gorman-Rupp Co. 305 Bowman St. Mansfield, Ohio
Goulds Pumps, Inc. 300 Fall St. Seneca Falls, N. Y.
Hinckley Technical Associates Inc. 15 Park Row, New York, N. Y.
Imperial Brass Mfg Co. 1200 W Harrison St. Chicago 7, Ill.
Independent Pneumatic Tool Co. 1405 W Washington Blvd, Chicago 7, Ill.
Ingersoll-Rand Co. 11 Broadway, New York 4, N. Y.
Johnston Pump Co. 2324 E 49th St. Los Angeles 11, Calif.
Lawrence Machine & Pump Corp. 371 Market St. Lawrence, Mass.
Lawrence Pump & Engine Co. 1 Marston St. Lawrence, Mass.
Mall Tool Co. 7740 S Chicago Ave. Chicago 19, Ill.
Marlow Pumps, Box 566, Ridgewood, N. J.
Nagle Pumps, 13th & North Center, Chicago Heights, Ill.
Nash Engrg Co. 346 Wilson Rd. S Norwalk, Conn.
Peerless Pump Div. 301 West Ave 26, Los Angeles 31, Calif.
Penberthy Injector Co. 1242 Holden Ave. Detroit 2, Mich.
Pomona Pump Co. Fairbanks-Morse, Pomona, Calif.
Union Steam Pump Co. Battle Creek, Mich.
Warren Steam Pump Co Inc. 1234 Bridges Ave. Warren, Mass.

Weil Pump Co. 1530 N Fremont St. Chicago 22, Ill.
Weinman Pump Mfg Co. 290 Spruce St. Columbus 8, Ohio
Worthington Pump & Machinery Corp, Harrison, N. J.
Yeomans Brothers Co. 1446 N Dayton St. Chicago 22, Ill.

PUMPS, TRIPLEX

Aldrich Pump Co. 3 Gordon St. Allentown, Pa.
American-Marsh Pumps Inc. 99 Capitol Ave. N E. Battle Creek, Mich.
Besler Corp. 4053 Harlan St. Emeryville 8, Calif.
Chicago Pump Co. 2300 Wolfram St. Chicago 18, Ill.
Condenser Service & Engrg Co. Inc. 89 River St, Hoboken, N. J.
Dean Bros Pumps Inc. 323 W 10th St. Indianapolis 7, Ind.
Deming Co. Salem, Ohio
Gorman-Rupp Co. 305 Bowman St. Mansfield, Ohio
Hills-Macanna Co. 2456 W Nelson St. Chicago 18, Ill.
Lapp Insulator Co, Inc. 150 Maple St, Le Roy, N. Y.
Marlow Pumps, Box 566, Ridgewood, N. J.
Union Steam Pump Co. Battle Creek, Mich.
Watson Stillman Co. 108 Aldene Road, Roselle, N. J.
Wilson-Snyder Mfg Div, U. S. Steel, Braddock, Pa.
Worthington Pump & Machinery Corp, Harrison, N. J.

PUMPS, TURBINE

American-March Pumps Inc. 99 Capitol Ave, N E, Battle Creek, Mich.
Aurora Pump Co. 616 Loucks St. Aurora, Ill.
Byron Jackson Co, Box 2017 Terminal Annex, Los Angeles 54, Calif.
Coffin, J S, Jr Co, 326 S Dean St. Englewood, N. J.
Dean Bros Pumps Inc. 323 W 10th St. Indianapolis 7, Ind.
DeLaval Steam Turbine Co, Trenton 2, N. J.
Deming Co. Salem, Ohio
Fairbanks, Morse & Co. Fairbanks-Morse Bldg, Chicago 5, Ill.
Hapman-Dutton Co. 622 Gibson St. Kalamazoo 11, Mich.
Ingersoll-Rand Co. 11 Broadway, New York 4, N. Y.
Johnston Pump Co. 2324 E 49th St. Los Angeles 11, Calif.
Layne & Bowler Inc. Box 6815, Memphis 8, Tenn.
Pacific Pumps Inc. 5715 Bicket St. Huntington Park, Calif.
Peerless Pump Div. Food Machy & Chemical Corp. 301 West Ave 26, Los Angeles 31, Calif.
Roth, Roy E Co. 2422 Fourth Ave. Rock Island, Ill.
Schaub, Fred H Engrg Co. 2710 S Marshall Blvd. Chicago 23, Ill.
Schellens-True Corp. Main St. Ivoryton, Conn.
Weil Pump Co. 1530 N Fremont St. Chicago 22, Ill.
Worthington Pump & Machinery Corp. Harrison, N. J.
Yeomans Bros Co. 1446 N Dayton St. Chicago 22, Ill.

PUMPS, VACUUM

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1, Wis.
American-Marsh Pumps Inc. 99 Capitol Ave. N E. Battle Creek, Mich.
Beach-Russ Co. 50 Church St. New York 7, N. Y.
Chicago Pneumatic Tool Co. 6 E 44th St. New York 17, N. Y.
Chicago Pump Co. 2300 Wolfram St. Chicago 18, Ill.
Condenser Service & Engrg Co. Inc. 89 River St, Hoboken, N. J.
Croll-Reynolds Co Inc. 17 John St. New York 7, N. Y.
Davidson, M T Co. 154 Nassau St. New York 7, N. Y.
Dean Bros Pumps Inc. 323 W 10th St. Indianapolis 7, Ind.
Dunham, C A, Co. 400 W Madison St. Chicago 6, Ill.
Eastern Industries Inc. 296 Elm St. New Haven 6, Conn.
Eclipse-Pioneer Div. Bendix Aviation Corp. Teterboro, N. J.
Economy Pumps Inc. 1000 Weller Ave. Hamilton, Ohio
Eisler Engrg Co Inc. 757 S 13th St. Newark 3, N. J.
Faber Engrg Co. Amber & Westmoreland Sts. Phila 34, Pa.

Fuller Co. 120 Bridge St. Catasauqua, Pa.
Gardner-Denver Co. Quincy, Ill.
General Electric Co. Schenectady 5, N. Y.
Hinckley Technical Associates, Inc. 15 Park Row, New York, N. Y.
Hoffman Specialty Co. 1001 York St. Indianapolis 7, Ind.
Ingersoll-Rand Co. 11 Broadway, New York 4, N. Y.
Kinney Mfg Co. 3529-41 Washington St. Boston 30, Mass.
Nash Engrg Co. 346 Wilson Rd. S Norwalk, Conn.
Pennsylvania Pump & Compressor Co. Easton, Pa.
Pomona Pump Co. Fairbanks-Morse, Pomona, Calif.
Porter, H K. Co. Inc. 1932 Oliver Bldg. Pittsburgh 22, Pa.
Quincy Compressor Co. Quincy, Ill.
Roots-Connersville Blower Corp. 900 W Mount St. Connersville, Ind.
Schutte & Koerting Co. Cornwells Heights, Bucks County, Pa.
Union Steam Pump Co. Battle Creek, Mich.
Warren Steam Pump Co Inc. 1234 Bridges Ave. Warren, Mass.
Wheeler, C H, Mfg Co. Lehigh & Sedgley Ave. Philadelphia 32, Pa.
Worthington Pump & Machinery Corp. Harrison, N. J.
Yeomans Brothers Co, 1446 N Dayton St. Chicago 22, Ill.

PUMPS, VARIABLE-DISPLACEMENT

Aldrich Pump Co. 3 Gordon St. Allentown, Pa.
American Engrg Co. Aramingo Ave & Cumberland St, Phila 25, Pa.
Bump Pump Co. 1830 West Ave S. La Crosse, Wis.
Farquhar, A B Co. York, Pa.
Hills-McCanna Co. 2456 W Nelson St. Chicago 18, Ill.
Lapp Insulator Co. Inc. 150 Maple St. Le Roy, N. Y.
Madden, P E & Co. 352 W Walton St. Chicago 10, Ill.
Milton Roy Co. 1305 E Mermaid Lane, Philadelphia 18, Pa.
Nathan Mfg Co. 416 E 106th St. New York 29, N. Y.
Proportioneers Inc. 345 Harris Ave. Providence 1, R. I.
Vickers Inc. 1596 Oakman Blvd. Detroit 32, Mich.
Worthington Pump & Machinery Corp. Harrison, N. J.

PURGERS, REFRIGERANT GAS

Armstrong Machine Works, 905 Maple St. Three Rivers, Mich.
Frick Co. W Main St. Waynesboro, Pa.
Waterbury Tool Div Vickers, Inc. 188 E Aurora St. Waterbury 67, Conn.
Worthington Pump & Machy Corp. Harrison, N. J.
York Corp. York, Pa.

PURIFIERS, GAS

Centrifix Corp. 3608 Payne Ave. Cleveland 14, Ohio
Eisler Engrg Co Inc. 757 S 13th St. Newark 3, N. J.
Koppers Co Inc. 200 Scott St. Baltimore, Md.
Peabody Engrg Corp. 580 Fifth Ave. New York 19, N. Y.
Permutit Co. 330 W 42nd St. New York 18, N. Y.
Power Piping Div. Blaw-Knox Co. 1525 Pennsylvania Ave. Pittsburgh 12, Pa.
Pritchard, J F & Co. 908 Grand Ave. Kansas City 6, Mo.
Thermix Corp. Greenwich, Conn.
Winslow Engrg Co. 4069 Hollis St. Oakland 8, Calif.

PURIFIERS, OIL, CENTRIFUGAL

Centrifix Corp. 3608 Payne Ave. Cleveland 14, Ohio
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
De Laval Separator Co. 165 Broadway, New York 6, N. Y.
Goodyer Industries, 224 S Michigan Ave. Chicago 4, Ill.
Honan-Crane Corp. 1200 6th St. Lebanon, Ind.
Sharples Corp. 2300 Westmoreland St. Phila 40, Pa.
Thermix Corp. Greenwich, Conn.

For additional information about manufacturers' products

Youngstown Miller Div, Walter Kidde & Co, 686 Main St, Belleville 9, N. J.

PURIFIERS, STEAM

Centrifix Corp, 3608 Payne Ave, Cleveland 14, Ohio
Cochrane Corp, 17th St & Allegheny Ave, Philadelphia 32, Pa.
Goodyer Industries, 224 S Michigan Ave, Chicago 4, Ill.
Hagan Corp, Hagan Bldg, Pittsburgh 30, Pa.
Heilman Boiler Wks, 132 Linden St, Allentown, Pa.
Infilco Inc, 2750 S 12th Ave, Tucson, Ariz.
Power Piping Div, Blaw-Knox Co, 1525 Pennsylvania Ave, Pittsburgh 12, Pa.
Wright-Austin Co, 3245 Wight St, Detroit 7, Mich.

PYROMETERS

Bailey Meter Co, 1050 Ivanhoe Rd, Cleveland 10, Ohio
Bristol Co, Waterbury 91, Conn.
Cambridge Instrument Co Inc, 3007 Grand Central Terminal, New York 17, N. Y.
Cleveland Fuel Equip Co, 7316 Associate Ave, Cleveland 9, Ohio
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Defender Instrument & Regulator Co, 815 Clark Ave, St Louis 2, Mo.
Engelhard, Charles, Inc, 900 Passaic Ave, East Newark, N. J.
Foxboro Co, 38 Neponset Ave, Foxboro, Mass.
General Electric Co, Schenectady 5, N. Y.
Graybar Electric Co, Inc, 420 Lexington Ave, New York 17, N. Y.
Illinois Testing Labs, 420 S La Salle St, Chicago 5, Ill.
J-B-T Instruments Inc, 441 Chapel St, New Haven 8, Conn.
Leeds & Northrup Co, 4970 Stenton Ave, Philadelphia 44, Pa.
Minneapolis-Honeywell Regulator Co, 2753 Fourth Ave S, Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co, Industrial Div, Wayne & Roberts Aves, Philadelphia 44, Pa.
Pyramid Instrument Corp, 307 Canal St, New York, N. Y.
Pyrometer Instrument Co, Bergenfield, N. J.
Roller-Smith, 1756 W Market St, Bethlehem, Pa.
Tagliabue, C J Mfg Co, 614 Frelinghuysen Ave, Newark 5, N. J.
Uehling Instrument Co, 473 Getty Ave, Paterson 3, N. J.
Velan Engrg Co, 1216 Drummond St, Montreal, P. Q., Canada
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

RACKS, TRASH

Bergen Point Iron Wks, Foot of W 5th St, Bayonne, N. J.
Chain Belt Co, 1674 W Bruce St, Milwaukee 4, Wis.
Hunt, Rodney Machine Co, 13 River St, Orange, Mass.
Petroleum Iron Wks Div, Box 3031, Beaumont, Texas
Lakeside Bridge & Steel Co, 5300 N 33rd St, Milwaukee 9, Wis.
Smith, S Morgan, Co, 500 Lincoln St, York, Pa.

RAKING MACHINES, TRASH RACKS

Chain Belt Co, 1674 W Bruce St, Milwaukee 4, Wis.
Smith, S Morgan, Co, 500 Lincoln St, York, Pa.

REACTORS, ELECTRIC, CAPACITIVE AND INDUCTIVE

Federal Telephone & Radio Corp, 100 Kingsland Rd, Clifton, N. J.
Ferranti Electric Inc, 30 Rockefeller Plaza, New York 20, N. Y.
General Electric Co, Apparatus Dept, Schenectady 5, N. Y.
Graybar Electric Co Inc, 420 Lexington Ave, N Y C 17, N. Y.
Hercules Electric & Mfg Co, Inc, 2500 Atlantic Ave, Brooklyn 7, N. Y.

RECLAIMERS, OIL

(See Purifiers, Oil)

RADIATORS, ENGINE-COOLING

Clark Bros Co, Inc, Olean, N. Y.
Feddern-Quigan Corp, 57 Tonawanda St, Buffalo 7, N. Y.
Harrison Radiator Div, General Motors Corp, Lockport, N. Y.
McCord Corp, 2587 E Grand Blvd, Detroit 11, Mich.
Marley Co Inc, 3001 Fairfax Rd, Kansas City 15, Kans.
Modine Mfg Co, 1543 De Koven Ave, Racine, Wis.
Palmer Mfg Corp, 21st Ave at Fillmore St, Phoenix, Ariz.
Perfex Corp, 500 W Oklahoma Ave, Milwaukee 7, Wis.
Pritchard, J F & Co, 908 Grand Ave, Kansas City 6, Mo.
Trane Co, LaCrosse, Wis.
Wilson Engrg Corp, 122 S Michigan Ave, Chicago 3, Ill.
Yates-American Machine Co, Beloit, Wis.
Young Radiator Co, 709 S Marquette St, Racine, Wis.

RADIATORS, HEATING

Clow, James B, & Sons, 201-299 N Talman Ave, Chicago 12, Ill.
Crane Co, 836 S Michigan Ave, Chicago 5, Ill.
McQuay Inc, 1600 Broadway St, NE, Minneapolis 13, Minn.
Modine Mfg Co, 1543 De Koven Ave, Racine, Wis.
Murray, D J, Mfg Co, 1024 Third St, Wausau, Wis.
Trane Co, LaCrosse, Wis.
Webster, Warren & Co, 17th & Federal Sts, Camden, N. J.

RECEIVERS, AIR

Alco Products Div, American Locomotive Co, Dunkirk, N. Y.
American District Steam Co, Bryant St, North Tonawanda, N. Y.
Beaird, J B Co Inc, 6200 St Vincent Ave, Shreveport, La.
Black, Sivalls & Bryson Inc, Power & Light Bldg, Kansas City 6, Mo.
Chicago Pneumatic Tool Co, 6 E 44th St, New York 17, N. Y.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Curtis Pneumatic Machine Co, 1934 Kienlen Ave, St Louis 20, Mo.
Downingtown Iron Wks, Wallace Ave, Downingtown, Pa.
Doyle & Roth Mfg Co, 136-50 24th St, Brooklyn, N. Y.
Farrar & Trefts Inc, 20 Milburn St, Buffalo 12, N. Y.
Graver Tank & Mfg Co Inc, 4809 Tod Ave, East Chicago, Ind.
Hapman-Dutton Co, 622 Gibson St, Kalamazoo 11, Mich.
Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.
Joy Mfg Co, Dept 5, Oliver Bldg, Pittsburgh 22, Pa.
Koven, L O, & Brother Inc, 154 Ogden Ave, Jersey City 7, N. J.
Linde Air Products Co, 30 E 42nd St, New York 17, N. Y.
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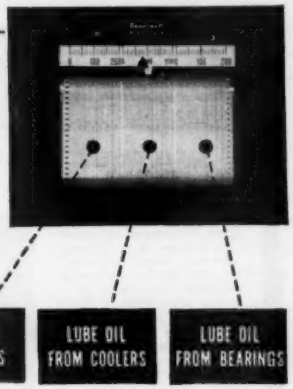
three related records on one chart!



The *ElectroniK* Split-Chart Recorder will provide a continuous record of any two or three variables, or any single variable from different pieces of equipment, on *one* dual or triple-section chart! Typical is the chart illustrated.

The instrument simplifies comparison of records between equipment . . . makes instantly apparent relationship between variables . . . effects economies in mounting space and original costs.

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CHECK your system for excess head pressure . . . Each 4 lbs. excess raises the load on your compressor, reduces its capacity by 1% and increases power costs 2%! Air and other non-condensables collecting in the condenser and receiver are nearly always the cause. An Armstrong Purger rids the system of air and keeps it that way...reduces loss of refrigerant...saves labor and time. The Purger pays for itself in short order.

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RECORDERS

OXYGEN-TEMPERATURE-LIQUID LEVEL

BAILEY METERS

BAILEY OXYGEN RECORDER

The Bailey Oxygen Recorder continuously measures the oxygen or excess air content of a gaseous mixture. Exceptional speed is obtained by the use of catalytic combustion on a noble metal filament which forms part of the measuring circuit. On typical installations, changes in oxygen content are indicated in about 10 seconds, and readings stabilize within 30 seconds.

This instrument has a minimum full chart range of 5 per cent Oxygen and a maximum range of 25 per cent. It is sensitive to changes of less than .05 per cent oxygen and has a sustained accuracy within one-quarter of one per cent of actual oxygen content.

It may operate air controls or high and low alarm contacts.

For complete information write for Bulletin 151-A.

Oxygen Recorder

BAILEY PYROTRON RESISTANCE THERMOMETER

You can use the Bailey Pyrotron to indicate, record and control temperatures between -300 F and 1200 F. It gives you from one to four continuous records on one circular chart.

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1. Air-operated control
2. On-Off electrical control
3. Modulated electronic control

Get the full facts about this accurate, sensitive and extremely fast electronic resistance thermometer—

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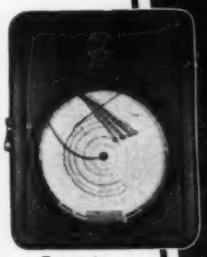

Temperature Recorder

BAILEY LEVEL RECORDER

The Bailey Level Recorder accurately indicates, records and controls level of liquids under pressure or in open vessels. It is available with float-type, bell-type or bellows-type level measuring devices to best suit your requirements.

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Liquid Level Recorder

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A simple push of a switch-button instantly and accurately "tunes" you in to a specific location. Button stays in until another is pushed . . . permitting logging of temperatures, when required. Just install thermocouples at the points from which you desire temperature readings and connect them to the instrument.

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Steam Jet Vacuum Refrigeration

The C. H. Wheeler Steam Jet Vacuum Refrigeration System uses only water as the refrigerant and employs the well known basic principle of cooling by flash evaporation. There are no moving parts, except the centrifugal pump rotating elements, consequently maintenance costs are exceedingly low. The condensers may be of the surface, low level jet or barometric jet types, depending upon installation requirements.

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Thermo-Hydraulic System
Bulletin S-20-E

Impulse Regulation System
Bulletin S-27

Swartwout feed water regulation systems—for small boilers ranging up from 25 lbs., or for high-pressure, fast-steaming boilers—assure correct water supply under all load conditions.

Type S-C Thermo-Hydraulic System is composed of three units: Pressure generator mounted on boiler at water level, regulating valve in feed line and connecting tubing. This powerful, closed hydraulic actuating system is extremely flexible. Simple adjustments can change sensitivity, raise or lower level, or stretch out variation in boiler level.

Swartwout's exclusive Impulse Regulation System—air operated for high-pressure, fast-steaming boilers subject to rapid load fluctuation—assures correct level under *any load* by utilizing the very forces that cause false drum level. Impulse Regulation uses the *rate of change* of load to produce a corrective impulse which neutralizes adverse effects of shrink and swell. It may comprise either a two or a three-element system. All controls including manual-automatic selection can be flush-panel mounted.

If you have a problem in feed water regulation, write for special bulletins or contact your nearest Swartwout representative. The Swartwout Company, 18511 Euclid Avenue, Cleveland 12, Ohio. A-3044

Swartwout
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Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
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Klipfel Valves Inc. 1000 Weller Ave. Hamilton. Ohio
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McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
McDonnell & Miller Inc. 3500 N Spaulding Ave. Chicago 18. Ill.
Magnetrol Inc. 2110 S Marshall Blvd. Chicago 23. Ill.
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Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1. Wis.
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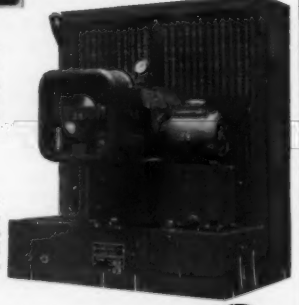

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American Cable Div, American Chain & Cable Co Inc, Wilkes-Barre, Pa.
American Steel & Wire Co, Rockefeller Bldg, Cleveland 13, Ohio
Bethlehem Steel Co, Bethlehem, Pa.
Broderick & Bascom Rope Co, 4203 N Union Blvd, St. Louis, Mo.
Colorado Fuel & Iron Corp, Continental Oil Bldg, Denver 1, Colo.
Jones & Laughlin Steel Corp, 3rd Ave & Ross St, Pittsburgh 30, Pa.
Le Tourneau, R G Inc, Peoria, Ill.
Macwhyte Co, 2944 14th Ave, Kenosha, Wis.
Murray, A B Co, Inc, 608 Green Lane, Elizabeth, N. J.
Roebling's, John A, Sons Co, Trenton 2, N. J.
Tennessee Coal, Iron & RR Co, U S Steel Sub, Brown Marx Bldg, Birmingham, Ala.
Wickwire Spencer Steel Div, Colorado Fuel & Iron Corp, 575 Madison Ave, New York 22, N. Y.
Wire Rope Slings Div, American Chain & Cable Co, Wilkes-Barre, Pa.

SAMPLERS, COAL

Bartlett, C O & Snow Co, 6200 Harvard Ave, Cleveland 5, Ohio
Hardinge Co Inc, 240 Arch St, York, Pa.
Heyl & Patterson Inc, 55 Water St, Pittsburgh 22, Pa.
Stephens-Adamson Mfg Co, 5 Ridgeway, Aurora, Ill.
Sturtevant Mill Co, 71 Harrison Sq, Boston 22, Mass.

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Bailey Meter Co, 1050 Ivanhoe Rd, Cleveland 10, Ohio
Cochrane Corp, 17th St & Allegheny Ave, Philadelphia 32, Pa.
Davis Engrg Corp, 1064 E Grand St, Elizabeth 4, N. J.
Hardinge Co Inc, 240 Arch St, York, Pa.
Henszey Co, 202½ Water St, Watertown, Wis
Inflico Inc, 2750 S 12th Ave, Tucson, Ariz.
Madden, P E & Co, 352 W Walton St, Chicago 10, Ill.
Refinite Corp, Box 1312, Omaha, Neb.

SCAFFOLDING

Beaver Art Metal Corp, Beaver Ave, Elmwood City, Pa.
Patent Scaffolding Co, Inc, 12th St, Long Island City 1, N. Y.
Safway Steel Products Inc, 6200 W State St, Milwaukee 13, Wis.
Universal Mfg Corp, Zelienople, Pa.
Up-Right Scaffolds, 1013 Pardee St, Berkeley, Calif.

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Beaumont Birch Co, 1505 Race St, Phila 2, Pa
Builders-Providence, Inc, 345 Harris Ave, Providence 1, R. I.
Fairbanks, Morse & Co, Fairbanks-Morse Bldg, Chicago 5, Ill.
Richardson Scale Co, Clifton, N. J.
Stephens-Adamson Mfg Co, 5 Ridgeway, Aurora, Ill.
Stock Equip Co, 715 P Hanna Bldg, Cleveland 15, Ohio
Yale & Towne Mfg Co, Roosevelt Blvd, Phila 15, Pa.

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American Manganese Div, American Brake Shoe Co, Chicago Heights, Ill.
Beaumont & Birch Co, 1505 Race St, Philadelphia 2, Pa.
Corrigan, J C, Co Inc, 41-47 Norwood St, Boston 22, Mass.
Fairfield Engrg Co, 320 Chicago Ave, Marion Ohio
Gifford-Wood Co Hudson N. Y.
Jeffrey Mfg Co, 932 N Fourth St, Columbus 16, Ohio
Joy Mfg Co, Dept 5, Oliver Bldg, Pittsburgh 22, Pa.
National Conveyors Co, Inc, 50 Church St, New York 7, N. Y.
Sauerman Bros, Inc, 562 S Clinton St, Chicago 7, Ill.
Wilmont Engineering Co, Hazleton, Pa.

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Caterpillar Tractor Co, 600 W Washington St, Peoria 8, Ill.
Le Tourneau, R G, Inc, Peoria, Ill.

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Bartlett, C O & Snow Co, 6200 Harvard Ave, Cleveland 5, Ohio
Bergen Point Iron Wks, Foot of W 5th St, Bayonne, New Jersey
Chain Belt Co, 1674 W Bruce St, Milwaukee 4, Wis.
Farquhar, A B Co, York, Pa.
Hendrick Mfg Co, P O Box 497, Carbondale, Pa.
Jeffrey Mfg Co, 932 N Fourth St, Columbus 16, Ohio
Link-Belt Co, 300 W Pershing Rd, Chicago 9, Ill.
McNally Pittsburg Mfg Corp, Pittsburg, Kansas.
Nordberg Mfg Co, 3073 S Chase Ave, Milwaukee 7, Wis.
Stephens-Adamson Mfg Co, 5 Ridgeway, Aurora, Ill.
Wickwire Spencer Steel Div, Colorado Fuel & Iron Corp, 575 Madison Ave, New York 22, N. Y.

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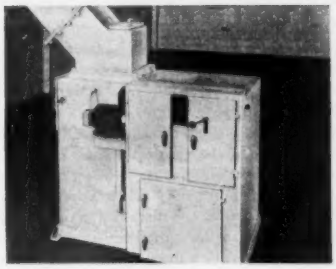

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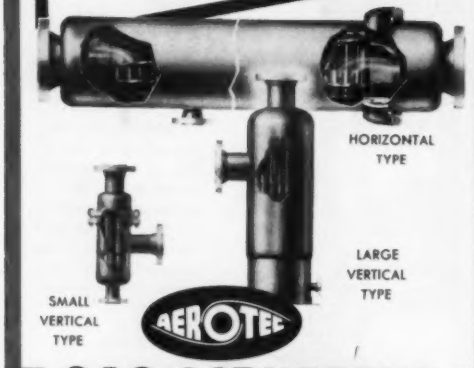

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Syntron Co. 492 Lexington, Homer City, Pa.
Warren Brothers Roads Co. 38 Memorial Dr. Cambridge 42, Mass.
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Gits Bros Mfg Co. 1846 S Kilbourne Ave. Chicago 23, Ill.
Greene, Tweed & Co. 322 Elm Ave. North Wales, Pa.
International Packing Corp. Bristol, N. H.
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Kunkle Valve Co. 119-121 S Clinton St. Fort Wayne 2, Ind.
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Sprout, Waldron & Co. Muncy, Pa.
Strong, Carlisle & Hammond Co, 1392 W 3rd St. Ceveland, Ohio
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Wright-Austin Co. 3245 Wight St. Detroit 7, Mich.

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Eriez Mfg Co. 420 Commerce Bldg. Erie, Pa.
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Clark Mfg Co. 1830 E 38th St. Cleveland 14, Ohio
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Crane Co. 836 S Michigan Ave. Chicago 5, Ill.
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Fisher Governor Co. Marshalltown, Iowa
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Hoppes Mfg Co. Box 906, Springfield, Ohio
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Refinite Corp. Box 1312, Omaha, Neb.
Sharples Corp. 2300 Westmoreland St. Phila 40, Pa.
Stickle Steam Specialty Co. 2265 Valley Ave. Indianapolis 1, Ind.

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Thermix Corp. Greenwich. Conn.
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Zurn. J A. Mfg Co. 1801 Pittsburgh Ave. Erie. Pa.

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Mexico Refractories Co. Better Refractories Bldg. Mexico. Mo.
Plibrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14. Ill.
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Mall Tool Co. 7740 S Chicago Ave. Chicago 19. Ill.

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Columbia Electric Mfg Co. 4519 Hamilton Ave. Cleveland 14. Ohio
Esterline-Angus Co Inc. 1201 Main St. Indianapolis 6. Ind.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co. Inc. 420 Lexington Ave. New York 17. N. Y.
Leeds & Northrup Co. 4970 Stenton Ave. Philadelphia 44. Pa.
Roller-Smith. 1756 W Market St. Bethlehem. Pa.
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Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
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General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Henschel Corp. 14 Cedar St. Amesbury. Mass.
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Signal Engrg Mfg Co. 154 W 14th St. New York 11. N. Y.
Synchro-Start Products. Inc. 1046 Fullerton Av. Chicago 14. Ill.
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Black. Sivalls & Bryson Inc. Power & Light Bldg. Kansas City 6. Mo.
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Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22. Ill.
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Link-Belt Co. 300 Pershing Rd. Chicago 9. Ill.
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Helicoid Div. American Chain & Cable Co Inc. Bridgeport 2. Conn.
Lonergan. J E Co. 209 Race St. Philadelphia 6. Pa.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Operating & Maintenance Specialties. Box 18. Charlotte 1. N. C.
Robinson. John R. 350 W 31st St. New York 1. N. Y.
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Permutit Co. 330 W 42nd St. New York 18. N. Y.
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Worthington Pump & Machinery Corp. Harrison. N. J.
Xzit Chemical Co. 158-14th St. Hoboken. N. J.

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(See Towers. Cooling)

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Swartwout Exhaust Heads
Bulletin S-16-C

Swartwout AIRFUGE
Bulletin S-13

Swartwout Separators assure 99% dry steam or better *virtually without pressure loss* . . . remove entrained liquids, solids, oil or grease from live or exhaust steam, from air or chemical vapors under high working pressures or under vacuum. No baffles, plates or grids to cause flow reversals, velocity heads or vibration. Horizontal, vertical and angle separator types. Cast iron or cast steel.

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Swartwout AIRFUGE air separators remove impurities by centrifugal force. Float-operated trap automatically releases accumulated liquids yet maintains level to effect seal.

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Connery Construction Co. 2nd & Luzerne Sts. Phila 40. Pa.
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
Farrar & Trefts Inc. 20 Milburn St. Buffalo 12. N. Y.
Fly Ash Arrestor Corp. Box 1883. Birmingham 1. Ala.
General American Transportation Corp. 10 E 49th St. New York 17. N. Y.
Godfrey-Keeler Co. 1 Hudson St. New York 13. N. Y.
Graver Tank & Mfg Co Inc. 4809 Tod Ave. East Chicago. Ind.
Heilman Boiler Works. 132 Linden St. Allentown. Pa.
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E Keeler Co. 238 West St. Williamsport 3. Pa.
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Prat-Daniel Corp. 2 Meadow St. South Norwalk. Conn.
Quaker City Iron Wks. Aramingo Ave & Ontario St. Phila 34. Pa
Steel Products Corp. 52 Vanderbilt Ave. New York 17. N. Y.
Thermix Corp. Greenwich. Conn.
Titusville Iron Works Co. Titusville. Pa.
Union Iron Works. 1420 Cascade St. Erie. Pa.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

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Reintjes. Geo P. Co. 2517 Jefferson St. P O Box 856. Kansas City. Mo.
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Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16. N. Y.
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Erie City Iron Works. 1422 East Ave. Erie. Pa.
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P-D Fan Stack Type 1. Single fan type with by-pass control.
P-D Fan Stack Type 1A. Twin fan may be used on two boilers or on wide load range. One fan delivers up to 70%. Second can be designed to cut in automatically.

Background in DRAFT PRODUCTION

From 200 Bo.H.P. to 1,000,000 lbs. steam/hr. or larger, P-D engineers have a background in designing and engineering the exact draft producing equipment required.

P-D Fan Stacks are a completely integrated unit, Fan, Breeching and Stack, offering:

SINGLE RESPONSIBILITY—From I.D. fan to Stack. The unit is designed, engineered, manufactured and guaranteed by one company, long experienced in power plant equipment and specialists in draft producing applications.

SELF SUPPORTING—The P-D Fan Stack requires no additional supporting structure. The base design provides necessary support and its inherent stability, even in high winds, permits direct mounting on the boiler steel where possible.

SELF CONTAINED—Within the Stack base is housed the I.D. Fan thus eliminating the conventional breeching connecting fan to stack. The P-D Fan Stack requires no "extras" for operation. From fan to stack the unit provides a high, predetermined efficiency on any evacuation problem. The venturi stack design converts velocity pressure to static pressure and the straight through breeching eliminates variables and losses due to breeching bends.

Our Project and Sales Engineers, The Thermix Corporation, will welcome your inquiry. You will have available engineers who have spent a lifetime on draft problems . . . men with a background in draft production.

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SOUTH NORWALK, CONN.

DESIGNERS AND MANUFACTURERS OF POWER PLANT EQUIPMENT FOR OVER 25 YEARS

DETROIT SINCE 1898 STOKERS

DETROIT STOKER COMPANY

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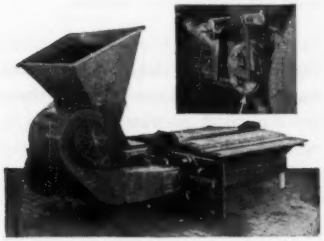
PRODUCTS AND SERVICE

Detroit Stokers are unsurpassed for economy and dependability. Both Underfeed and Overfeed Stokers of many sizes and capacities. All grades of bituminous coal are successfully burned without expensive preparation. Operating costs are low, plant efficiencies raised to new standards and capacities of present boilers increased. The purchaser is assured a Detroit Stoker best suited to his particular boiler, kind of coal available and capacity required. Proper design and application by experienced builders produce best results. Write for *Bulletin*

DETROIT LOSTOKER

Now Available with Detroit Adjustable Feed (Coal Feed Control).



Detroit LoStoker, built to fit the furnace of Firebox Boilers. Requires no side wall or front wall brick work.

Detroit LoStoker is a complete firing unit. Compact — single retort — mechanically driven — plunger feed — side-cleaning design. Many sizes and capacities for various types of boilers. Simple, accessible, dependable.

Now the LoStoker is available with the *Detroit Adjustable Feed*, a reliable automatic coal feed control. It regulates the fuel supply according to the load when connected to a Master Regulator which also controls the air. Coal and air are thus proportionately varied for maximum efficiency at all capacities. Write for *Bulletin*

Detroit UniStoker with Adjustable Feed provides a wide range of coal feed control.

Installation of Detroit Double Retort Stoker now equipped with Detroit Adjustable Coal Feed Control.

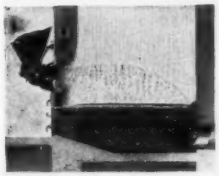
DETROIT UNISTOKER

Plunger feed, side-cleaning stoker is available in various sizes for 125 to 250 horsepower boilers. Compact, unit type, has full-housed blower, either motor or steam turbine driven, conveniently mounted at stoker front. Adjustable Feed, provides for either manual or automatic coal feed control. Thousands in daily operation. Write for *Bulletin*

DETROIT DOUBLE RETORT STOKER

Two retorts will do more than one. The Double Retort is a multiple retort stoker having two retorts, with the side-cleaning feature requiring no basement. Now available with Detroit Adjustable Feed Coal Feed Control so that the coal and air supply are always proportioned to the load. For medium sized boilers. Write for *Bulletin*

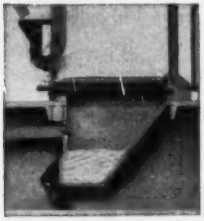
DETROIT ROTOSTOKER



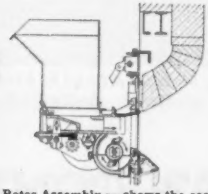
Detroit RotoStoker with Stationary Grates. Ash removal is through doors at grate level.

Detroit RotoStoker with Hand Dumping Grates, cleaned by releasing dumping levers at the front.

Detroit RotoStoker is spreader stoker with OVERTHROW ROTORS that distribute the fuel uniformly in the furnace. Fine particles burned in suspension. Coarse coal, burned on the grate with a comparatively thin but uniform fuel bed. Three types of grates shown are available. RotoStokers burn successfully an extremely wide range of fuels without any special preparation. Responsive to fluctuating loads, maintaining uniform steam pressure under automatic control of fuel and air supply to the furnace. Operate with high CO_2, low combustible loss in ash. Little power required for operation. Maintenance costs are negligible. In combination with coal, RotoStokers also successfully burn wood and other refuse. Write for *Bulletin*



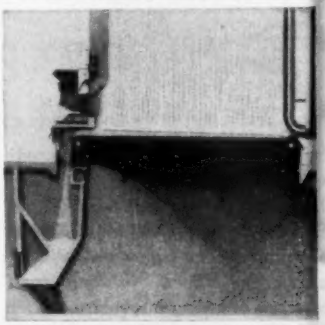
Detroit RotoStoker with Power Operated Dumping Grates, either steam or compressed air operated.



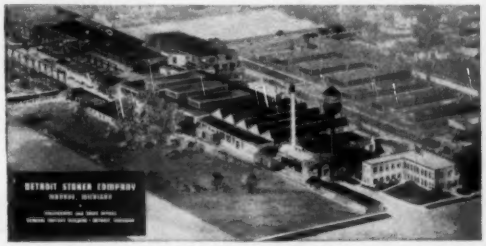
Rotor Assembly — shows the coal feed-plate, the adjustable spilling plate, and the air-cooled Rotor housing. The Rotor shaft operates in water-cooled ball bearings.

DETROIT ROTOGRATE STOKER

An advanced design of spreader stoker with FORWARD MOVING GRATES for large and medium boilers. Fine particles of fuel are burned in suspension and coarse coal, burned on the grate. Screenings or crushed run-of-mine coal are used without grinding or pulverizing. Successfully burns a wide range of fuels, such as the lower grades of Bituminous Coal and Lignites, mined in the Western States, as well as the better grades of Bituminous Coal. Fuels of high ash content are burned with higher burning rates for longer periods. Intermittent cleaning of fires or disturbance of uniform combustion is eliminated by the slow, continuous FORWARD MOVEMENT OF THE GRATES that discharges the ash at the front. Combustible content of ash is usually less than two per cent. Write for *Bulletin*



Detroit RotoGrate Stoker has a CONTINUOUSLY CLEANING FORWARD MOVING GRATE that permits higher burning rates with fuels of either high or low ash content.



Manufacturing facilities are unexcelled. All Detroit Stokers are completely assembled and inspected at our works and erected under expert supervision.

HOFFMAN STOKERS

CONTINUOUS ASH DISCHARGE STOKER AT WALLINGFORD PLANT OF AMERICAN CYANAMID CO.

Hoffman pioneering developed the first forced draft spreader stoker—HOFFMAN STOKERS are still first in capacity and efficiency—still lead the field in low maintenance and less frequent outage for repairs.

Hoffman FIRITE stoker success has made spreader stoker firing the dominant method of burning coal in a national market.

The wide distribution of Hoffman FIRITE stokers in the United States has provided an outlet for the large amount of "fines" resulting from mechanical mining in general use by larger producers of Bituminous coal.

POWER DUMPING STOKER AT PEARL RIVER PLANT, LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID CO.

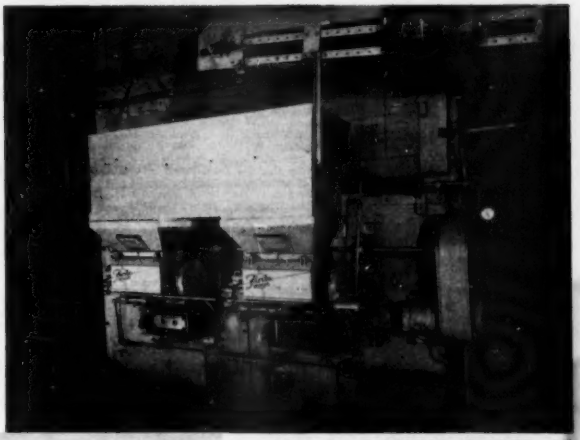
HOFFMAN COMBUSTION

DETROIT, MICHIGAN

— NATION WIDE

HOFFMAN STOKERS operate with equal success when using any Bituminous, Semi-Bituminous, Sub-Bituminous or lignites mined in North America.

During World War No. 2 spreader stokers ability to use any type of coal mined contiguous to the point of use saved millions of freight car miles, and millions of dollars in freight rates.



MANUAL DUMPING STOKER AT WALLINGFORD PLANT OF AMERICAN CYANAMID COMPANY

AMERICAN CYANAMID COMPANY'S LEDERLE LAB. INC.
PEARL RIVER, N.Y.

Coal

M	2%	BTU	13,600
V	30%		
FC	60%	F. temp.	2200°
A	8%	Size	½" R.M. screen
	100%		

Data Taken from Acceptance Test on Combined Boiler, Air Heater and Stoker.
Test 8-3-45

Designed Load 80,000
Four-hour peak 91,000
600 p.s.i.g. 750 F. 225 F.W.
Boiler 9985 Square feet W.W. 1915 Square feet
Air Heater 11,000 Square feet
Stoker 5C-PDG 16-9" x 14'-4" = 240 Square feet
Furnace 5250 Cu. Ft.

	Heat Balance
Dry Flue Gas	7.32%
H	3.08%
Min. Air	.17%
Min. Fuel	.18%
Loss Radiation	.75%
Unburned Comb.	1.50%
Margin A.B.M.A.	1.50%
Total	14.50%

Efficiency 85.5%

There are HOFFMAN STOKERS and HOFFMAN OWNERS conveniently located in your area. There is a HOFFMAN ENGINEER in your neighborhood who will be glad to demonstrate.

INVESTIGATE BEFORE YOU BUY

FIRST Firite SPREADER

ENGINEERING COMPANY

FAIRMONT, WEST VIRGINIA

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Strong, Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13, Ohio
Trane Co. LaCrosse, Wis
Velan Engrg Co. 1216 Drummond St. Montreal, P. Q., Canada
Walworth Co. 60 E 42nd St. New York 17, N. Y.
Webster, Warren & Co. 17th & Federal Sts. Camden, N. J.
Wright-Austin Co. 3245 Wight St. Detroit 7, Mich.
Yarnall-Waring Co. Chestnut Hill, Philadelphia 18, Pa.
Zurn, J A. Mfg Co. 1801 Pittsburgh Ave. Erie, Pa.

STRAINERS, WATER

American District Steam Co. Bryant St. North Tonawanda, N. Y.
American Flexible Coupling Co. 1801 Pittsburgh Ave. Erie, Pa.
Andale Co. 1604 Arch St. Philadelphia, Pa.
Anderson, V D. Co. 1935 W 96th St. Cleveland 2, Ohio
Armstrong Machine Works. 905 Maple St. Three Rivers, Mich.
Atlas Valve Co. 280-84 South St. Newark 5, N. J.
Barnes & Jones Inc. 128 Brookside Ave. Boston 30, Mass.
Blackburn-Smith Div. 95 River St. Hoboken, N. J.
Cash, A W Co. Decatur 7, Ill.
Cash, A W Valve Mfg Corp. 6616 E Wabash Ave. Decatur, Ill.
Cashin, W D. Co. 69 "A" St. Boston 27, Mass.
Clark Mfg Co. 1830 E 38th St. Cleveland 14, Ohio
Coen Co. 40 Boardman Place. San Francisco 3, Calif.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Cryer Trap & Valve Co Inc. 366 Madison Ave. N. Y. 17, N. Y.
Cuno Engrg Corp. 80 S Vine St. Meriden, Conn.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8, Ill.
Drico Industrial Corp. 559 W 35th St. N. Y. 6, N. Y.
Dunham, C A Co. 400 W Madison St. Chicago 6, Ill.
Eddington Metal Specialty Co. P O Box K. Eddington, Pa.
Edward Valves Inc. 1200 W 145th St. East Chicago, Ind.
Elliott Co. Jeannette, Pa.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22, Pa.
Henry Valve Co. 3215 North Ave. Melrose Park, Ill.
Hunt, Rodney, Machine Co. Orange, Mass.
Keckley, O C. Co. 400 W Madison St. Chicago 6, Ill.
Kieley & Mueller Inc. 2013 43rd St. North Bergen, N. J.
Klemp, Wm F. Co. 6601 S Melvina Ave. Chicago 38, Ill.
Layne & Bowler Inc. Box 6815 Hollywood Sta. Memphis 8, Tenn.
Leslie Co. 255 Grant Ave. Lyndhurst, N. J.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8, Ill
Mason-Neilan Regulator Co. 1190 Adams St. Boston 24, Mass.
Monarch Mfg Wks Inc. 2501 E Ontario St. Phila 34, Pa.
Mueller Co. 512 W Cerro Gordo St. Decatur 70, Ill.
Permutit Co. 330 W 42nd St. New York 18, N. Y.
Pratt, Henry Co. 2222 S Halsted, Chicago 8, Ill.
R-S Products Corp. 4600 Germantown Ave. Philadelphia 44, Pa.
Refinite Corp. Box 1312, Omaha, Neb.
Rockwood Sprinkler Co. 38 Harlow St. Worcester 5, Mass.
Ruggles-Klingemann Mfg Co. Foster Court. Salem, Mass.
Sarco Co Inc. Empire State Bldg. New York 1, N Y
Schaible Co. 1086 Summer St. Cincinnati, Ohio
Schutte & Koerting Co. Cornwells Heights, Bucks County, Pa.
Spence Engrg Co Inc. Walden, N. Y.
Spraying Systems Co. 3201 Randolph St. Bellwood, Ill.
Strong, Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13, Ohio
Trane Co. LaCrosse, Wis
Velan Engrg Co. 1216 Drummond St. Montreal, P. Q., Canada
Walworth Co. 60 E 42nd St. New York 17, N. Y.
Webster, Warren & Co. 1658 Federal St. Camden, N J
Winslow Engrg Co. 4069 Hollis St. Oakland 8, Calif.
Wright-Austin Co. 3245 Wight St. Detroit 7, Mich.
Yarnall-Waring Co. Chestnut Hill, Philadelphia 18, Pa.
Zurn, J A Mfg Co. 1801 Pittsburgh Ave. Erie, Pa.

SUBSTATIONS, UNIT

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1, Wis.
Delta-Star Electric Co. 2400 Fulton St. Chicago 12, Ill.
General Electric Co. Schenectady 5, N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17, N. Y.
I-T-E Circuit Breaker Co. 19th & Hamilton Sts. Phila 30, Pa.
Moloney Electric Co. 5390 Bircher Ave. St. Louis, Mo.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30, Pa.

SUPERHEATERS

Babcock & Wilcox Co. 85 Liberty St. New York 6, N. Y.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N Y. 16, N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken, N. J.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor, Delaware
Erie City Iron Wks. 1422 East Ave. Erie, Pa.
E Keeler Co. 238 West St. Williamsport 3, Pa.
Foster Wheeler Corp. 165 Broadway. New York 6, N Y.
Goodyear Industries. 224 S Michigan Ave. Chicago 4, Ill.
Hellman Boiler Wks. 132 Linden St. Allentown, Pa.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16, N. Y.
Petro-Chem Development Co. 120 E 41st St. New York 17, N. Y.

Riley Stoker Corp. 9 Neponset St. Worcester, Mass.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield, Ill.

SWITCHBOARDS

Adam, Frank. Electric Co. P O Box 357. St. Louis 3. Mo.
Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Bolinders Co Inc. 33 Rector St. New York 6. N. Y.
Bull Dog Electric Products Co. 7610 Jos Campau. Detroit 32. Mich.
Burke Electric Co. 12th & Cranberry Sts. Erie. Pa.
Consolidated Diesel Elec Corp. 230 E 6th St. Mt Vernon. N. Y.
Control Corp. 718 Central Ave. Minneapolis 14. Minn.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1. Wis.
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13. Minn.
Falstrom Co. 22 Falstrom Ct. Passaic. N. J.
Federal Electric Products Co Inc. 50 Paris St. Newark 5. N. J.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17. N. Y.
I-T-E Circuit Breaker Co. 19th & Hamilton Sts. Phila 30. Pa.
Ready Power Co. 11231 Freud Ave. Detroit. Mich.
Roller-Smith. 1756 W Market St. Bethlehem. Pa.
Sinex Projects Inc. 745 Fifth Ave. New York 22. N. Y.
Square D Co. 4041 N Richards St. Milwaukee 12. Wis.
Trumbull Elec Mfg Co. 41 Woodford Ave. Plainville. Conn.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

SWITCHGEAR, METALLIC

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Consolidated Diesel Elec Corp. 230 E 6th St. Mt Vernon. N. Y.
Delta-Star Electric Co. 2400 Fulton St. Chicago 12. Ill.
Electric Machinery Mfg Co. 1331 NE Tyler St. Minneapolis 13. Minn.
Falstrom Co. 22 Falstrom Ct. Passaic. N. J.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co. Inc. 420 Lexington Ave. New York 17. N. Y.
Ideal Elec & Mfg Co. E First St. Mansfield. Ohio
Kirk & Blum Mfg Co. 2874 Spring Grove Ave. Cincinnati 25. Ohio
Roller-Smith. 1756 W Market St. Bethlehem. Pa
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

SWITCHES, ELECTRIC

Adam. Frank. Electric Co. P O Box 357. St Louis 3. Mo.
Allen-Bradley Co. 1326 S 2nd St. Milwaukee 4. Wis.
Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Arrow-Hart & Hegeman Electric Co. 103 Hawthorn St. Hartford 6. Conn.
Automatic Switch Co. 391 Lakeside Ave. Orange. N. J.
Bull Dog Electric Products Co. 7610 Jos Campau. Detroit 32. Mich.
Clark Controller Co. 1146 E 152nd St. Cleveland 10. Ohio
Cook Electric Co. 2700 Southport Ave. Chicago 14. Ill.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1. N. Y.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1. Wis.
Delta-Star Electric Co. 2400 Fulton St. Chicago 12. Ill.
Electric Controller & Mfg Co. 2700 E 79th St. Cleveland 4. Ohio
Federal Electric Products Co Inc. 50 Paris St. Newark 5. N. J.
General Electric Co. Schenectady 5. N. Y.
General Switch Corp. 45 Roebling St. Brooklyn 11. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Industrial Controller Div. Square D Co. 4041 N Richards St. Milwaukee 12. Wis.
I-T-E Circuit Breaker Co. 19th & Hamilton Sts. Phila 30. Pa.
Lumenite Electronic Co. 407 S Dearborn St. Chicago 5. Ill.
McDonnell & Miller Inc. 3500 N Spaulding Ave. Chicago 18. Ill.
Mallory. P R & Co Inc. 3029 E Washington St. Indianapolis 6.
Mercoid Corp. 4201 Belmont Ave. Chicago 41. Ill.
Minneapolis - Honeywell Regulator Corp. 2753 Fourth Ave S. Minneapolis 8. Minn.
Monitor Controller Co. 51 Hayward St. Baintree 84. Mass.
Ohmite Mfg Co. 4385 W Flournoy St. Chicago 44. Ill.
Pacific Electric Mfg Corp. 5815 Third St. San Francisco 24. Calif.
Penn Electric Switch Co. Goshen. Ind.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7. Wis.
Pyle-National Co. 1334 N Kostner Ave. Chicago 51. Ill.
Roller-Smith. 1756 W Market St. Bethlehem. Pa.
Shepard Niles Crane & Hoist Corp. Schuyler Ave. Montour Falls. N. Y.
Square D Co. 4041 N Richards St. Milwaukee 12. Wis.
Trumbull Electric Mfg Co. 41 Woodford Ave. Plainville. Conn.
Ward Leonard Electric Co. 100 South St. Mount Vernon. N. Y.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

SWITCHES, ELECTRIC, DOUBLE THROW, AUTOMATIC

Allen-Bradley Co. 1326 S 2nd St. Milwaukee 4. Wis.
Automatic Switch Co. 391 Lakeside Ave. Orange. N. J.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1. Wis.
General Electric Co. Construction Materials Dept. 1285 Boston Ave. Bridgeport 2. Conn.
General Switch Corp. 45 Roebling St. Brooklyn 11. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17. N. Y.
I-T-E Circuit Breaker Co. 19th & Hamilton Sts. Phila 30. Pa.
Monitor Controller Co. 51 Hayward St. Baintree 84. Mass.
Trumbull Electric Mfg Co. 41 Woodford Ave. Plainville. Conn.
Ward Leonard Electric Co. 100 South St. Mount Vernon. N. Y.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

SWITCHES, ELECTRIC, FLOAT

Aerotec Corp. Greenwich. Conn.
Allen-Bradley Co. 1326 S 2nd St. Milwaukee 4. Wis.
Arrow-Hart & Hegeman Electric Co. 103 Hawthorn St. Hartford 6. Conn
Autocall Co. 1047 Warden Ave. Shelby. Ohio
Automatic Control Co. 1005 University Ave. St Paul 4. Minn.
Clark Controller Co. 1146 E 152nd St. Cleveland 10. Ohio
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1. N. Y
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1. Wis.
Electric Controller & Mfg Co. 2700 E 79th St. Cleveland 4. Ohio
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Industrial Controller Div. Square D Co. 4041 N Richards St Milwaukee 12. Wis.
J-O Bell Products. 4840 S St. Louis. Chicago. Ill.
McDonnell & Miller. Inc. 3500 N Spaulding Ave. Chicago 18. Ill
Magnetrol Inc. 2110 S Marshall Blvd. Chicago 23. Ill.
Mercoid Corp. 4201 Belmont Ave. Chicago 41. Ill.
Monitor Controller Co. 51 Hayward St. Baintree 84. Mass.
Square D Co. 4041 N Richards St. Milwaukee 12. Wis.
Trumbull Electric Mfg Co. 41 Woodford Ave. Plainville. Conn.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

SWITCHES, ELECTRIC, KEY, INTERLOCKING

General Electric Co. Construction Materials Dept. 1285 Boston Ave. Bridgeport 2. Conn.
General Switch Corp. 45 Roebling St. Brooklyn 11. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17. N. Y.
Square D Co. 4041 N Richards St. Milwaukee 12. Wis.
Ward Leonard Electric Co. 100 South St. Mount Vernon. N. Y.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

SWITCHES, ELECTRIC, MERCURY-TILTING

Crouse Hinds Co. Wolf & Seventh N. Syracuse 1. N. Y.
General Electric Co. Construction Materials Dept. 1285 Boston Ave. Bridgeport 2. Conn.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Magnetrol Inc. 2110 S Marshall Blvd. Chicago 23. Ill.
Mercoid Corp. 4201 Belmont Ave. Chicago 41. Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Norwalk Valve Co. 33 Railroad Ave. South Norwalk. Conn.

SYNCHRONIZERS, AUTOMATIC

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Burlington Instrument Co. 203 N 3rd St. Burlington. Iowa
Control Corp. 718 Central Ave. Minneapolis 14. Minn.
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13. Minn.
General Electric Co. Schenectady 5. N. Y.
Proportioneers Inc. 345 Harris Ave. Providence 1. R. I.
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Atlantic Gear Wks. 200 Lafayette St. New York 12. N. Y.
Biddle, James G Co. 1316 Arch St. Philadelphia 7, Pa.
Bristol Co. Waterbury 91. Conn.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Eclipse-Pioneer Div. Bendix Aviation Corp. Teterboro. N. J.
Equipoise Controls Inc. 100 Stevens Ave. Mt. Vernon. N. Y.
Esterline-Angus Co. 1201 Main St. Indianapolis 6. Ind.
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
General Electric Co. Schenectady 5. N. Y.
Ideal Industries Inc. Sycamore. Ill.
Manning, Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2 Conn
Metron Instrument Co. 432 Lincoln St. Denver 9. Colo.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
Reliance Electric & Engrg Co. 1096 Ivanhoe Rd. Cleveland 10. Ohio
Scherr. Geo. Co. 202P Lafayette St. New York 12. N. Y.
Sticht. Herman H. Co. 27 Park Place. New York 7. N. Y.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.
Zernickow. O. Co. 15 Park Row New York 38. N. Y.

TANKS, CAST IRON

Brady Conveyors Corp. 20 W Jackson Blvd. Chicago 4. Ill.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Hahn-Pitz Corp. 286 Scholes St. Brooklyn 6. N. Y.
Heilman Boiler Wks. 132 Linden St. Allentown Pa.
Holmes. Robert. & Bros. Danville. Ill.
Jenkins Conveyors Co. 614 Central Ave. East Orange. N. J.
National Conveyors Co. Inc. 50 Church St. New York 7. N. Y.

TANKS, RIVETED, WELDED

Airtherm Mfg Co. 700 S Spring Ave. St Louis 10. Mo.
Alco Products Div. American Locomotive Co. Dunkirk. N. Y.
Allen-Sherman-Hoff Co. 227 S 15th St. Philadelphia 2. Pa.
American Car & Foundry Co. 30 Church St. N. Y. 7. N. Y.
Ampco Metal Inc. 1701 S 38th St. Milwaukee 4. Wis.
Bergen Point Iron Wks. Foot of W 5th St. Bayonne. N. J.
Bethlehem Steel Co. Bethlehem. Pa.
Bigelow Co. Lloyd & River Sts. New Haven 13. Conn
Black. Sivalls & Bryson Inc. Power & Light Bldg. Kansas City 6. Mo.
Bros. Wm. Boiler & Mfg Co. 1057 10th Ave. S E. Minneapolis 14
Brownell Co. 306 N Findlay St. Dayton 1. Ohio
Chicago Bridge & Iron Co. 2454 McCormick Bldg. Chicago 4. Ill.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16. N.Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Connery Construction Co. 2nd & Luzerne Sts. Phila 40. Pa.
Downingtown Iron Wks Inc. Wallace Ave. Downingtown. Pa.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor. Del.
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
Falstrom Co. 22 Falstrom Ct. Passaic. N. J.
Farquhar. A B Co. York. Pa.
Farrar & Trefts Inc. 20 Milburn St. Buffalo 12. N. Y.
Fiori Pipe Co. 601 E Red Bud Ave. St Louis. Mo.
Frick Co. W Main St. Waynesboro. Pa.
General American Transportation Corp. 10 E 49th St. New York 17. N. Y.
Godfrey-Keeler Co. 1 Hudson St. New York 13. N. Y.
Graver Tank & Mfg Co Inc. 4809 Tod Ave. East Chicago. Ind.
Hanson-Van Winkle-Munning Co. Church St. Matawan. N. J.
Heilman Boiler Wks. 132 Linden St. Allentown. Pa.
Hendrick Mfg Co. P O Box 497. Carbondale. Pa.
Hicks. S D & Son Co. 1671 Hyde Park Ave. Boston 36. Mass.
Holmes. Robert. & Bros. Danville. Ill.
Hunt. Rodney. Machine Co. Orange. Mass.
Jenkins Conveyors Co. 614 Central Ave. East Orange. N. J.
Jones & Laughlin Steel Corp. 3rd Ave & Ross St. Pittsburgh 30. Pa.
Koven. L O & Brother Inc. 154 Ogden Ave. Jersey City 7. N. J.
Lakeside Bridge & Steel Co. 5300 N 33rd St. Milwaukee 9. Wis.
Littleford Bros Inc. 453 E Pearl St. Cincinnati. Ohio
Murray Iron Works. 1106 Washington St. Burlington. Iowa
Nazareth Steel Fabricators Inc. Nazareth. Pa.
National Tube Co. U S Steel Sub. Frick Bldg. Pittsburgh 19. Pa.
Nooter Corp. 1400 S 2nd St. St Louis 4. Mo.
Orange Roller Bearing Co. 557 Main St. Orange. N. J.
Patterson-Kelley Co. Inc. 129 Burson St. East Stroudsburg. Pa.
Protectoseal Co. 1920 S Western Ave. Chicago 8. Ill.
Quaker City Iron Wks. Aramingo Ave & Ontario St. Phila 34. Pa.
Rockwell. W S Co. 200 Eliot St. Fairfield. Conn.
Sims Co. 1402 E 18th St. Erie. Pa.
Steel Products Corp. 52 Vanderbilt Ave. New York 17. N. Y.
Stover Steel Tank & Mfg Co. 107 S Hancock St. Freeport. Ill.
Titusville Iron Works Co. Titusville. Pa.
Union Iron Works. 1420 Cascade St. Erie. Pa.
Warren Brothers Roads Co. 38 Memorial Dr. Cambridge 42. Mass.
Whitlock Mfg Co. 46 South St. Hartford 10. Conn.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.
Wright-Austin Co. 3245 Wight St. Detroit 7. Mich.

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Darcoid Co Inc. 145 Sixth Ave. New York 13. N. Y.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
Greene. Tweed & Co. 322 Elm Ave. North Wales. Pa.
Johns-Manville. 22 East 40th St. New York 16. N. Y.
Keasbey & Mattison Co. Butler Ave. Ambler. Pa.
Linear Inc. State Rd & Levick St. Tacony. Phila 35. Pa.
National Electric Coil Co. 794 Chambers St. Columbus 16. Ohio
Plant Rubber & Asbestos Wks. 537 Brannan St. San Francisco. Calif.
Raybestos-Manhattan. Inc. Packing Div. Manheim. Pa.
Ruberoid Co. 500 Fifth Ave. New York 18. N. Y.
Union Asbestos & Rubber Co. Dept 1819. 332 S Michigan Ave. Chicago 4. Ill.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.

TAPE, FRICTION

Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Cork Import Corp. 1 Engle St. Englewood. N. J.
General Electric Co. Chemical Dept. Pittsfield. Mass.
Gilmer. L H Co. Div U. S. Rubber Co. Tacony. Philadelphia 35. Pa.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Johns-Manville. 22 East 40th St. New York 16. N. Y.
National Electric Coil Co. 794 Chambers St. Columbus 16. Ohio
New York Belting & Packing Co. 1 Market St. Passaic. N. J.
Okonite Co. Canal St. Passaic. N. J.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.

TAPE, RUBBER

Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Armstrong Cork Co. Liberty St. Lancaster. Pa.
Boston Woven Hose & Rubber Co. P O Box 1071. Cambridge. Mass.
General Electric Co. Chemical Dept. Pittsfield. Mass.
Gilmer. L H Co. Div U. S. Rubber Co. Tacony. Philadelphia 35. Pa.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Goodrich. B F Co. Akron. Ohio
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Johns-Manville. 22 E 40th St. New York 16. N. Y.
Joy Mfg Co. Dept 5. Oliver Bldg. Pittsburgh 22. Pa.
National Electric Coil Co. 794 Chambers St. Columbus 16. Ohio
New York Belting & Packing Co. 1 Market St. Passaic. N. J.
Okonite Co. Canal St. Passaic. N. J.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.

TAPE, VARNISHED CAMBRIC

General Electric Co. Chemical Dept. Pittsfield. Mass.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
National Electric Coil Co. 794 Chambers St. Columbus 16. Ohio
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

TEST EQUIPMENT, LUBRICATING OILS

Fischer & Porter Co. 500 County Line Rd. Hatboro. Pa.
General Electric Co. Schenectady 5. N. Y.
Gerin Corp. Red Bank. N. J.

TESTERS, VOLTAGE

Beckman Instruments Inc. 820 Mission St. South Pasadena. Calif.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co. Inc. 420 Lexington Ave. New York 17. N. Y.
Greer Hydraulics Inc. 454 18th St. Brooklyn. N. Y.
Holub Industries. 413 DeKalb Ave. Sycamore. Ill.
Ideal Industries Inc. Sycamore. Ill.
Simpson Electric Co. 5200 W Kinzie. Chicago 44. Ill.
Square D Co. 4041 N Richards St. Milwaukee 12. Wis.
Star Fuse Co Inc. 235 Canal St. New York 13. N. Y.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.

THERMOCOUPLES

Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10. Ohio
Bristol Co. Waterbury 91. Conn.
Cambridge Instrument Co Inc. 3007 Grand Central Terminal. New York 17. N. Y.
Engelhard. Charles Inc. 900 Passaic Ave. East Newark. N. J.
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
General Controls Co. 801 Allen Ave. Glendale 1. Calif.
General Electric Co. Schenectady 5. N. Y.
Illinois Testing Labs. 420 S LaSalle St. Chicago 5. Ill.
J-B-T Instruments Inc. 441 Chapel St. New Haven 8. Conn.
Leeds & Northrup Co. 4970 Stenton Ave. Philadelphia 44. Pa.
Manning. Maxwell & Moore Inc. 11 Elias St. Bridgeport 2. Conn.
Minneapolis - Honeywell Regulator Corp. 2753 Fourth Ave S. Minneapolis 8. Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
Pyrometer Instrument Co. Bergenfield. N. J.
Simpson Electric Co. 5200 W Kinzie. Chicago 44. Ill.
Tagliabue. C J Mfg Co. 614 Frelinghuysen Ave. Newark 5. N. J.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Wheelco Instruments Co. 847 W Harrison St. Chicago 7. Ill.

THERMOMETERS, DIAL

Alemite Div. Stewart-Warner Corp. 1826 Diversey Pkwy. Chicago 14. Ill.
Bristol Co. Waterbury 91. Conn.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
Fedders-Quigan. 57 Tonawanda St. Buffalo 7. N. Y.
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Marsh. Jas P. Corp. Skokie. Ill.
Marshalltown Mfg Co. 810 E Nevada. Marshalltown. Iowa
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
Precision Thermom & Instr Co. 1401 Brandywine St. Philadelphia 30
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Simpson Electric Co. 5200 W Kinzie. Chicago 44. Ill.
Tagliabue. C J Mfg Co. 614 Frelinghuysen Ave. Newark 5. N. J.
Taylor Instrument Cos. 95 Ames St. Rochester 1. N. Y.
U S Gauge Div. American Machine & Metals Inc. Sellersville. Pa.
Velan Engrg Co. 1216 Drummond St. Montreal. P. Q.. Canada
Weksler Thermometer Corp. 52 W Houston St. New York 12. N. Y
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.

THERMOMETERS, GLASS

Bristol Co. Waterbury 91. Conn.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
H-B Instrument Co. Inc. 2633 Trenton Ave. Philadelphia 25. Pa.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.

Manning, Maxwell & Moore, Inc. 11 Elias St. Bridgeport 2. Conn.
Precision Thermom & Instr Co. 1401 Brandywine St. Phila 30. Pa.
Tagliabue, C J Mfg Co. 614 Frelinghuysen Ave. Newark 5. N. J.
Taylor Instrument Cos. 95 Ames St. Rochester 1. N. Y.
U S Gauge Div. American Machine & Metals Inc. Sellersville, Pa.
Velan Engrg Co. 1216 Drummond St. Montreal. P. Q., Canada
Weksler Thermometer Corp. 52 W Houston St. New York 12. N. Y.

THERMOMETERS, REMOTE-READING

Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10. Ohio
Bristol Co. Waterbury 91. Conn.
Cleveland Fuel Equip Co. 7316 Associate Ave. Cleveland 9. Ohio
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
Edison Thomas A. Inc. Instrument Div. West Orange 3. N. J.
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
Hotstream Heater Co. 2363 E 69th St. Cleveland 4. Ohio
Illinois Testing Labs. 420 S LaSalle St. Chicago 5. Ill.
J-B-T Instrument Inc. 441 Chapel St. New Haven 8. Conn.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
Leeds & Northrup Co. 4970 Stenton Ave. Philadelphia 44. Pa.
Manning Maxwell & Moore, Inc. 11 Elias St. Bridgeport 2. Conn.
Marsh. Jas P. Corp. Skokie. Ill.
Marshalltown Mfg Co. 810 E Nevada. Marshalltown. Iowa
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
Pennsylvania Industrial Instr Co. 3116 N 17th St. Phila. Pa.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
Republic Flow Meters Co. 2222 Diversey Parkway. Chicago 47. Ill.
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Tagliabue. C J Mfg Co. 614 Frelinghuysen Ave. Newark 5. N. J.
Taylor Instrument Cos. 95 Ames St. Rochester 1. N. Y.
U S Gauge Div. American Machine & Metals Inc. Sellersville. Pa.
Weksler Thermometer Corp. 52 W Houston St. New York 12. N. Y.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.
Wheelco Instruments Co. 847 W Harrison St. Chicago 7. Ill.

THERMOSTATS, DUCT, SURFACE

Allen-Bradley Co. 1326 S 2nd St. Milwaukee 4. Wis.
Barber-Colman Co. Rockford. Ill.
Burling Instrument Co. 5 Vose Ave. South Orange. N. J.
Edison Thomas A. Inc. Instrument Div. West Orange 3. N. J.
Fenwal Inc. 240 Pleasant St. Ashland. Mass.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4. Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
Mercoid Corp. 4201 Belmont Ave. Chicago 41. Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7. Wis.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.

THERMOSTATS, IMMERSION

Allen-Bradley Co. 1326 S 2nd St. Milwaukee 4. Wis.
Barber-Colman Co. Rockford. Ill.
Burling Instrument Co. 5 Vose Ave. South Orange. N. J.
Edison Thomas A. Inc. Instrument Div. West Orange 3. N. J.
Fenwal Inc. 240 Pleasant St. Ashland. Mass.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
Klipfel Mfg Co. 1000 Weller Ave. Hamilton. Ohio
Leslie Co. 235 Grant Ave. Lyndhurst. N. J.
Mercoid Corp. 4201 Belmont Ave. Chicago 41. Ill.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
Penn Electric Switch Co. Goshen. Ind.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7. Wis.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Ulanet. Geo. Co. 415 Market St. Newark 5. N. J.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Wiegand. Edwin L Co. 7500 Thomas Blvd. Pittsburgh 8. Pa.

THERMOSTATS, ROOM OR WALL

Armstrong Machine Works. 905 Maple St. Three Rivers. Mich.
Barber-Colman Co. Rockford. Ill.
Bristol Co. Waterbury 91. Conn.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1. N. Y.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
Dole Valve Co. 1913 W Carroll Ave. Chicago 12. Ill.
Edison. Thomas A Inc. Instrument Div. West Orange 3. N. J.
Fenwal Inc. 240 Pleasant St. Ashland. Mass.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4. Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
Mercoid Corp. 4201 Belmont Ave. Chicago 41. Ill.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
Penn Electric Switch Co. Goshen. Ind.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7. Wis.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.
Wiegand. Edwin L Co. 7500 Thomas Blvd. Pittsburgh 8. Pa.

THERMOSTATS, 2-TEMPERATURE

Barber-Colman Co. Rockford. Ill.
Bristol Co. Waterbury 91. Conn.
Burling Instrument Co. 5 Vose Ave. South Orange. N. J.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
Mercoid Corp. 4201 Belmont Ave. Chicago 41. Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7. Wis.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
Sarco Co Inc. Empire State Bldg. New York 1, N. Y.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

THERMOSTATS, WEATHER-COMPENSATING

Barber-Colman Co. Rockford. Ill.
Dole Valve Co. 1913 W Carroll Ave. Chicago 12. Ill.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4. Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Philadelphia 44. Pa.
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.

THICKENERS, CYCLONE

American Cyanamid Corp. 30 Rockefeller Plaza. New York 20. N. Y.
Dorr Co. 568 Lexington Ave. New York. N. Y.
Heyl & Patterson Inc. 55 Water St. Pittsburgh 22. Pa.

TIGHTENERS, BELT

Chain Belt Co. 1674 W Bruce St. Milwaukee 4. Wis.
Continental Gin Co. 4500 5th Ave S. Birmingham 2. Ala.
Corrigan. J C. Co Inc. 41-47 Norwood St. Boston 22. Mass.
Gifford-Wood Co. Hudson. N. Y.
Jeffrey Mfg Co. 932 N Fourth St. Columbus 16. Ohio
Link-Belt Co. 300 W Pershing Rd. Chicago 9. Ill.
Medart Co. 100 Potomac St. St Louis 18. Mo.
Sprout. Waldron & Co. Muncy. Pa.
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.

TILES, BOILER BAFFLE

Carborundum Co. Perth Amboy. N. J.
Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22. Ill.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Denver Fire Clay Co. P O Box 5510. Denver 17. Colo.
Engineer Co. 75 West St. New York 6. N. Y.
Graybar Electric Co. 420 Lexington Ave. New York 17. N. Y.
Laclede Christy Co. 3600 Forbes St. Pittsburgh 13. Pa.
Mexico Refractories Co. Better Refractories Bldg. Mexico. Mo.
Norton Co. 1 New Bond St. Worcester 6. Mass.
Plibrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14. Ill.
Power Plant Efficiency Co. P O Box 592. Indianapolis 4. Ind.
Quigley Co. Inc. 527 Fifth Ave. New York 17. N. Y.
Waite Construction Co. 111 Westminster St. Providence 3. R. I.

TOOLS, BOILER-TUBE CUTTING

Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
DoAll Co. Des Plaines. Ill.
Murray. A R. Co Inc. 608 Green Lane. Elizabeth. N. J.
Voss Machine Works. 242 E 122nd St. New York. N. Y.
Wiedeke. Gustav. Co. 1833 Richard St. Dayton 10. Ohio

TOOLS, MAINTENANCE

Billings & Spencer Co. 1 Laurel St. Hartford. Conn.
Black & Decker Mfg Co. Towson 4. Md.
Blackhawk Mfg Co. 5325 W Rogers Ave. Milwaukee 1. Wis.
Bonney Forge & Tool Wks. 716 N Meadow St. Allentown. Pa.
Clipper Mfg Co. 2800 Warwick Ave. Kansas City. Mo.
DoAll Co. Des Plaines. Ill.
du Mont Corp. 39 Beacon St. Greenfield. Mass.
Durametallic Corp. Factory St. Kalamazoo 24. Mich.
Duro Metal Products Co. 2649 N Kildare Ave. Chicago. Ill.
Graybar Electric Co. Inc. 420 Lexington Ave. New York 17. N. Y.
Greene. Tweed & Co. 322 Elm Ave. North Wales. Pa.
Ideal Industries Inc. Sycamore. Ill.
Le Roi Co. 1706 S 68th St. Milwaukee 14. Wis.
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Stanley Works. 480 Myrtle St. New Britain, Conn.
Snap-on Tools Corp. Kenosha, Wis.
South Bend Lathe Co. 425 E Madison St. South Bend 22. Ind.
Syntron Co. Homer City, Pa.
Toledo Pipe Threading Machine Co. 1445 Summit St. Toledo 4. Ohio
Trimont Mfg Co. 55 Amory St. Boston 19. Mass.
Walton Co. Box 5. Elmwood Branch. Hartford 10. Conn.
Walworth Co. 60 E 42nd St. New York 17. N. Y.
Wells Mfg Corp. Three Rivers. Mich.
Will-Burt Co. Orrville. Ohio
Williams J H & Co. 400 Vulcan St. Buffalo 7. N. Y.

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DoAll Co. Des Plaines. Ill.
Ridge Tool Co. 400 Clark St. Elyria. Ohio
Threadwell Tap & Die Co. 16 Arch St. Greenfield. Mass.
Toledo Pipe Threading Machine Co. 1445 Summit St. Toledo 4. Ohio
Trimont Mfg Co. 55 Amory St. Boston 19. Mass.

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Black & Decker Mfg Co. Towson 4. Md.
Buckeye Tools Corp. 30 W Apple St. Dayton 1. Ohio
Chicago Pneumatic Tool Co. 6 E 44th St. New York 17. N. Y.
Cleco Div. Reed Roller Bit Co. 5125 Clinton Drive. Houston 20. Texas
Clipper Mfg Co. 2800 Warwick Ave. Kansas City. Mo.

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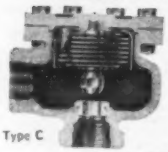

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Greene, Tweed & Co. 322 Elm Ave. North Wales. Pa.
Hill Pump Valve Co. 2728 Elston Ave. Chicago 47. Ill.
Independent Pneumatic Tool Co. 1405 W Washington Blvd. Chicago 7. Ill.
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Joy Mfg Co. Dept 5. Oliver Bldg. Pittsburgh 22. Pa.
Le Roi Co. 1706 S 68th St. Milwaukee 14. Wis.
Mall Tool Co. 7740 S Chicago Ave. Chicago 19. Ill.
Millers Falls Co. 57 Wells St. Greenfield. Mass.
Owatonna Tool Co. 373 Cedar St. Owatonna. Minn.
Schramm Inc. West Chester. Pa.
Sexauer, J A. Mfg Co. 2503 Third Ave. New York 51. N. Y.
Skilsaw Inc. 5033 N Elston Ave. Chicago 30. Ill.
Snap-On Tools Corp. Kenosha. Wis.
Syntron Co. 492 Lexington. Homer City. Pa.

TOWERS, COOLING

Bergen Point Iron Wks. Foot of W 5th St. Bayonne. N. J.
Binks Mfg Co. 3114-40 Carrol Ave. Chicago 12. Ill.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Curtis Mfg Co. 1905 Kienlen Ave. St Louis 20. Mo.
Farrar & Trefts Inc. 20 Milburn St. Buffalo 12. N. Y.
Fluor Corp. Ltd. 2500 S Atlantic Blvd. Los Angeles 22. Calif.
Foster Wheeler Corp. 165 Broadway. New York 6. N. Y.
Lilie-Hoffman Cooling Towers Inc. 4239 Duncan. St Louis 10. Mo.
Lummus Co. 420 Lexington Ave. New York 17. N. Y.
Marley Co. Inc. 3001 Fairfax Rd. Kansas City 15. Kans.
Nazareth Steel Fabricators Inc. Nazareth. Pa.
Nooter Corp. 1400 S 2nd St. St Louis 4. Mo.
Peabody Engrg Corp. 580 Fifth Ave. New York 19. N. Y.
Phillips Cooling Tower Co. Inc. 114 Liberty St. N. Y. 6. N. Y.
Pritchard. J F & Co. 908 Grand Ave. Kansas City 6. Mo.
Santa Fe Tank & Tower Co. 5401 Boyle Ave. Los Angeles 11. Calif.
United Cooling Tower Co. Porter Bldg. Kansas City. Mo.
Water Cooling Equip Corp. New Hampshire & Webster Rd. St Louis 23. Mo.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Wheeler. C H. Mfg Co. Lehigh & Sedgley Ave. Philadelphia 32. Pa.

TRACTORS, COAL-PILING

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee. Wis.
Caterpillar Tractor Co. 600 W Washington St. Peoria 8. Ill.
Hough Co. Libertyville. Ill.
LeTourneau. R G. Inc. Peoria. Ill.

TRANSFORMERS, ELECTRIC, INSTRUMENT

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee. Wis.
Associated Research Inc. 3758 W Belmont Ave. Chicago 18. Ill.
Belco Industrial Equip Div Inc. 52 Iowa Ave. Paterson 3. N. J.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Burlington Instrument Co. 203 N 3rd St. Burlington. Iowa
Eisler Engrg Co Inc. 757 S 13th St. Newark 3. N. J.
Esterline-Angus Co. 1201 Main St. Indianapolis 6. Ind.
Federal Telephone & Radio Corp. 100 Kingsland Rd. Clifton. N. J.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Jefferson Electric Co. Bellwood. Ill.
Raytheon Mfg Co. Waltham 54. Mass.
Sangamo Electric Co. Springfield. Ill.
Sticht. Herman H Co. 27 Park Pl. New York 7. N. Y.
Superior Electric Co. 83 Laurel St. Bristol 2. Conn.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.

TRANSFORMERS, ELECTRIC, POWER

Albertson Electric Co. 3530 W Pierce St. Milwaukee. Wis.
Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee. Wis.
Belco Industrial Equip Div Inc. 52 Iowa Ave. Paterson 3. N. J.
Boston Transformer Co. 202 Sidney St. Cambridge 39. Mass.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Eisler Engrg Co Inc. 757 S 13th St. Newark 3. N. J.
Ferranti Electric Inc. 30 Rockefeller Plaza. New York 20. N. Y.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Hercules Electric & Mfg Co Inc. 2500 Atlantic Ave. Brooklyn 7. N. Y.
Jefferson Electric Co. Bellwood. Ill.
Moloney Elec Co. 5390 Bircher Ave. St Louis. Mo.
Raytheon Mfg Co. Waltham 54. Mass.
Wagner Electric Corp. 6400 Plymouth Ave. St Louis 14. Mo.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

TRANSMISSIONS, VARIABLE SPEED, ELECTRIC

DoAll Co. Des Plaines. Ill.
Lima Electric Motor Co. Findlay Rd. Lima. Ohio
Raytheon Mfg Co. Waltham 54. Mass.
Reliance Electric & Engrg Co. 1068 Ivanhoe Rd. Cleveland 10. Ohio
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.
Sterling Electric Motors Inc. 5401 Anaheim-Telegraph Rd. Los Angeles 22. Calif.

TRANSMISSIONS, VARIABLE SPEED, HYDRAULIC

American Blower Corp. Detroit 32. Mich.
DoAll Co. Des Plaines. Ill.
Link-Belt Co. 2045 W Hunting Park Ave. Philadelphia 40. Pa.
Vickers Inc. 1596 Oakman Blvd. Detroit. Mich.
Waterbury Tool Div. Vickers. Inc. 188 E Aurora St. Waterbury 67. Conn.

TRANSMISSIONS, VARIABLE SPEED, MECHANICAL

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
American Pulley Co. 4200 Wissahickon Ave. Phila 29. Pa.
Atlantic Gear Works. 200 Lafayette St. New York 12. N. Y.
DoAll Co. Des Plaines. Ill.
Lima Electric Motor Co. Findlay Rd. Lima. Ohio
Link-Belt Co. 2045 W Hunting Park Ave. Philadelphia 40. Pa.
Lovejoy Flexible Coupling Co. 5098 W Lake St. Chicago 44. Ill.
Mercon Regulator Co. 2357 N 29th St. Milwaukee 10. Wis.
Morse Chain Co. 7601 Central Ave. Detroit 8. Mich.
Philadelphia Gear Wks Inc. G St & Erie Ave. Philadelphia 34. Pa.
Reeves Pulley Co. Columbus. Ind.
Snow-Nabstedt Gear Corp. 251 Welton St. Hamden 7. Conn.
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.
Vickers Inc. 1402 Oakman Blvd. Detroit. Mich.
Worthington Pump & Machinery Corp. Harrison. N. J.

TRAPS, CINDER

Buell Engrg Co Inc. 70 Pine St. New York 5. N. Y.
Green Fuel Economizer Co Inc. 627 Main St. Beacon. N. Y.
Prat-Daniel Corp. 2 Meadow St. South Norwalk. Conn.

TRAPS, COMPRESSED-AIR
(See Also Separators)

Armstrong Machine Works, 905 Maple St. Three Rivers, Wis.
Clark Mfg Co. 1630 E 38th St. Cleveland 14. Ohio
Cryer Trap & Valve Co. 366 Madison Ave. New York 17. N. Y.
De Vilbiss Co. 300 Phillips Ave. Toledo 1. Ohio
Dollinger Corp. 23 Centre Park. Rochester 3. N. Y.
Illinois Engineering Co. Racine Ave & 20th Place. Chicago 8. Ill.
Kaye & McDonald Inc. 11-15 Central Ave. West Orange. N. J.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
McAuley Trap Co. Dept 702. 405 Penn Ave. Pittsburgh 22. Pa.
Nicholson. W H. & Co. 125 Oregon St. Wilkes-Barre. Pa.
Sarco Co. Inc. Empire State Bldg. New York 1. N. Y.
Schrader's. A. Son. 470 Vanderbilt Ave. Brooklyn. N. Y.
Squires. C E. Co. 18502 Syracuse Ave. Cleveland 10. Ohio
Sterling Engrg & Mfg Corp. 110 Business St. Hyde Park 36. Mass.
Strong. Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13. Ohio
Templeton Mfg Co. Hyde Park 36. Boston. Mass.
Wright-Austin Co. 3245 Wight St. Detroit 7. Mich.

TRAPS, OIL

American Flexible Coupling Co. 1801 Pittsburgh Ave. Erie. Pa.
Anderson. V D. Co. 1935 W 96th St. Cleveland 2. Ohio
Fisher Governor Co. Marshalltown. Iowa
Illinois Engrg Co. Racine Ave & 20th Place. Chicago 8. Ill.
Kieley & Mueller. Inc. 2013 43rd St. North Bergen. N. J.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
Stack Heater Co. 80 Batterymarch St. Boston 10. Mass.
Strong. Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13. Ohio
Wright-Austin Co. 3245 Wight St. Detroit 7. Mich.

TRAPS, PUMPING

Clark Mfg Co. 1830 E 38th St. Cleveland 14. Ohio
Johnson Corp. 805 Wood St. Three Rivers. Mich.
Morehead Mfg Co. 2455 W Warren Ave. Detroit 8. Mich.
O'Brien Steam Specialty Co. Inc. 312 Heffernan Bldg. Syracuse 2. N. Y.
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Scoville Mfg Co. 99 Mill St. Waterbury 91. Conn.
Sterling Engineering & Mfg Corp. 110 Business St. Hyde Park. Boston 36. Mass.
Strong. Carlisle & Hammond Co. 1392 W 3rd St. Cleveland. Ohio
Templeton Bros. 169 Reservation Rd. Hyde Park 36. Mass.

TRAPS, RADIATOR

Barnes & Jones. Inc. 128 Brookside Ave. Boston 30. Mass.
Cashin. W D Co. 69 "A" St. Boston 27. Mass.
Cryer Trap & Valve Co Inc. 366 Madison Ave. N. Y. 17. N. Y.
Dunham. C A Co. 400 W Madison St. Chicago 6. Ill.
Grinnell Co Inc. 260 W Exchange St. Providence 1. R. I.
Hoffman Specialty Co. 1001 York St. Indianapolis 7. Ind.
Illinois Engrg Co. Racine Ave & 20th Place. Chicago 8. Ill.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
Marsh. Jas P. Corp. Skokie. Ill.
Nicholson. W H & Co. 125 Oregon St. Wilkes-Barre 1. Pa.
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Sterling Inc. 3713 N Holton St. Milwaukee 12. Wis.
Strong. Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13. Ohio
Trane Co. LaCrosse. Wis.
Velan Engrg Co. 1216 Drummond St. Montreal. P. Q., Canada
Webster. Warren & Co. 17th & Federal Sts. Camden. N. J.

TRAPS, RETURN

Barnes & Jones Inc. 128 Brookside Ave. Boston 30. Mass.
Cochrane Corp. 17th St & Allegheny Ave. Philadelphia 32. Pa.
Cryer Trap & Valve Co Inc. 366 Madison Ave. New York 17. N. Y.
Dunham. C A Co. 400 W Madison St. Chicago 6. Ill.
Hoffman Specialty Co. 1001 York St. Indianapolis 7. Ind.
Illinois Engrg Co. Racine Ave & 20th Place. Chicago 8. Ill.
International Combustion Corp. 436 Pearl St. New York. N. Y.
Johnson Corp. 805 Wood St. Three Rivers. Mich.
Leavitt Machine Co. 10 E River St. Orange. Mass.
Marsh. Jas P. Corp. Skokie. Ill.
Morehead Mfg Co. 2455 W Warren Ave. Detroit 8. Mich.
O'Brien Steam Spec Co. Inc. 312 Heffernan Bldg. Syracuse 2. N. Y.
Permutit Co. 330 W 42nd St. New York 18. N. Y.
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Sterling Engrg & Mfg Corp. 110 Business St. Hyde Park 36. Boston. Mass.
Sterling Inc. 3713 N Holton St. Milwaukee 12. Wis.
Templeton Bros. 169 Reservation Rd. Hyde Park 36. Mass.
Trane Co. LaCrosse. Wis.
Velan Engrg Co. 1216 Drummond St. Montreal. P. Q., Canada
Webster. Warren & Co. 17th & Federal Sts. Camden. N. J.

TRAPS, STEAM

American District Steam Co. Bryant St. North Tonawanda. N. Y.
Anderson. V D. Co. 1935 W 96th St. Cleveland 2. Ohio
Armstrong Machine Works. 905 Maple St. Three Rivers. Mich.
Barnes & Jones Inc. 128 Brookside Ave. Boston 30. Mass.
Cashin. W D Co. 69 "A" St. Boston 27. Mass.
Clark Mfg Co. 1830 E 38th St. Cleveland 14. Ohio
Climax Controls Div. Black. Sivalls & Bryson Inc. Box 1529. Tulsa 1. Okla.
Cochrane Corp. 17th St & Allegheny Ave. Philadelphia 32. Pa.
Coe Mfg Co. Bank St. Painesville. Ohio
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Cryer Trap & Valve Co Inc. 366 Madison Ave. N. Y. 17. N. Y.
Davis Engrg Corp. 1064 E Grand St. Elizabeth 4. N. J.
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O'Brien Steam Spec Co. Inc. 312 Heffernan Bldg. Syracuse 2. N. Y.
Owens. Henry & Co. Inc. 51 Washington Ave. Cranston 7. R. I.
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advertised in this issue see advertisers' index pages 232-233

CRYER STEAM TRAPS

INVERTED BUCKET TYPE: Sizes ½" to 2"; pressures 0 to 250#; capacities 500 to 20,000# condensate. Low in maintenance, high in performance. Also special Air and Air Relief Traps available.

THERMOSTATIC RADIATOR TRAPS: Angle type in ½" and ¾" sizes; pressures up 30#; rated at 300 and 400 square feet of radiation.

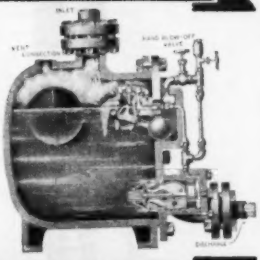
CRYER BALL STEAM TRAPS: Sizes from ¾" to 2". Known formerly as the J-M Ball Steam Trap. Also made in ½" "Junior" model.

Full details on request. Distributors in principal cities.

CRYER TRAP & VALVE CO., INC.
366 Madison Ave. New York 17, N. Y.
Manufacturers of Steam Specialties for over fifty years.

NICHOLSON

PISTON-OPERATED STEAM TRAP



ENORMOUS DRAINAGE CAPACITY—With valve orifices up to 2" diam., they offer unsurpassed drainage capacity. Universally specified for steam purifiers. Also for superheated lines, headers, separators, heaters, etc. Discharge large volumes of water almost instantly. Unaffected by dirt; won't leak even if cooked dry; working parts of stainless steel; non-wire drawing discharge valve. Press., 2 to 650 lbs. CATALOG 250.

W. H. NICHOLSON & CO.
125 Oregon Street Wilkes-Barre, Pennsylvania

AIR trap selection and installation for automatic drainage of water from compressed air intercoolers, aftercoolers, receivers, separators and drip points are fully described. Helpful sections include typical installation diagrams, illustrations of the various models of Armstrong Air Traps, their applications and operation, and their materials (cast or forged steel bodies and caps, chrome steel valves and seats, stainless steel interior parts). Physical data and list prices complete the story.

There's enough information here for anyone to make the most effective air trap selection for *any* moisture drainage job, any pressure or capacity range. FOR YOUR COPY, WRITE:

ARMSTRONG MACHINE WORKS
812 Maple Street Three Rivers, Michigan

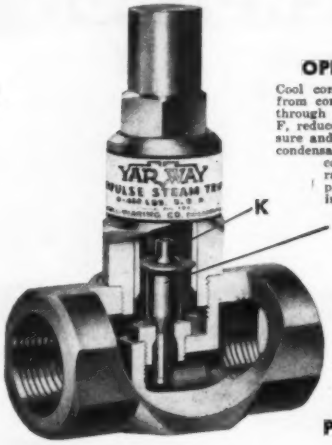
YARWAY

IMPULSE STEAM TRAPS

With Yarway Impulse Steam Traps on the job, equipment not only gets hotter, sooner . . . it *stays hot.* That's because when condensate load is heavy, Yarways discharge *continuously* until the lines and jackets are cleared. Then when equipment reaches working temperature the discharge is *intermittent,* keeping it at peak efficiency.

The small size of Yarway traps permits easy installation anywhere. Maintenance is minimum. Yarways have but one moving part, a simple valve . . . no floats, buckets, bellows or diaphragms. Trap body is machined from stainless steel bar stock. Low in cost.

For complete description write for Bulletin T-1740

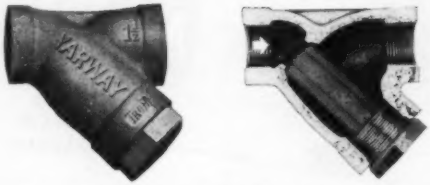


OPERATION

Cool condensate, flowing from control chamber K through center of valve F, reduces chamber pressure and valve lifts. Hot condensate vaporizes in control chamber raising chamber pressure and closing valve.

OVER 750,000 PURCHASED

YARWAY STRAINERS



Yarway Fine-Screen Strainers offer three improved features for better screening and cheaper maintenance. (1) Monel woven wire screen gives maximum screening with minimum restrictions of flow. (2) Screen cap has machined face and gasket for tight joint or easy removal; straight threads guide screen into place when re-assembling. (3) Body is cadmium plated to prevent rusting.

Ten standard sizes from ¼" to 3". Iron body for pressures up to 250 lb.; steel body for pressures up to 600 lb. Write for Bulletin S-203.

See other Yarway Advertisements on pages 84, 89, 123, 131

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Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Babcock & Wilcox Tube Co. Beaver Falls. Pa.
Bethlehem Steel Co. Bethlehem. Pa.
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Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Globe Steel Tubes Co. 3839 W Burnham St. Milwaukee 4. Wis.
Jones & Laughlin Steel Corp. 3rd Ave & Ross St. Pittsburgh 30. Pa.
Murray. A B Co. Inc. 608 Green Lane. Elizabeth. N. J.
National Supply Co. Grant Bldg. Pittsburgh 30. Pa.
National Tube Co. U S Steel Sub. Frick Bldg. Pittsburgh 19. Pa.
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Standard Tube Co. 24400 Plymouth Rd. Detroit. Mich.
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Timken Roller Bearing Co. 1835 Deuber Ave. SW. Canton 6. Ohio
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Babcock & Wilcox Tube Co. Beaver Falls. Pa.
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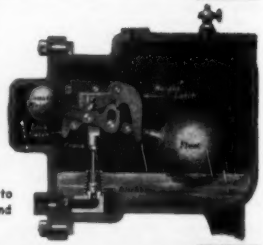
NICHOLSON

WEIGHT-OPERATED

STEAM TRAPS

Automatic Intermittent Action

Advanced features for modern power plants: won't leak even if cooked dry, preventing live steam loss; non-wire drawing; unaffected by dirt, pulsation, etc.; rugged; of stainless steel where it counts; easily connected. 3 types for press. to 200, 650 and 1500 lbs. Also for air and gasoline lines. CATALOG 250.



W. H. NICHOLSON & CO.

125 Oregon Street Wilkes-Barre, Pennsylvania

ARMSTRONG MACHINE WORKS

812 Maple Street, Three Rivers, Mich.

Sales and Service Representatives in Leading Industrial Centers
Traps carried in stock throughout the world . . . can be ordered through any jobber

All Armstrong Products Listed Are Sold on a Basis of Satisfaction or Your Money Back

ARMSTRONG TRAPS

FOR PRESSURES TO 250 PSI

Armstrong invented the inverted bucket trap in 1911. In the traps shown here, the original design advantages of self-scrubbing action and freedom from air binding have been incorporated into a frictionless all stainless steel mechanism. Available in two body styles for neatest possible hookups: (1) side-inlet, side-outlet traps — pioneered by Armstrong — in which cap and mechanism lift out as a unit without disturbing pipe connections; and (2) bottom-inlet, top-outlet traps. Bodies and caps are cast semi-steel, close grained and of high tensile strength. Bucket and lever mechanism are of stainless steel. Valve and seat are of special chrome steel alloy, heat-treated, ground and lapped. Materials used in mechanisms are identical to those furnished in traps for temperatures to 900° F and pressures to 950 psi. (*Complete data in Catalog J.*)

FOR PRESSURES TO 1500 PSI

Since 1929 Armstrong has been building inverted bucket high pressure traps with forged steel bodies and caps and stainless steel mechanisms especially resistant to the corrosive action of high temperature condensate and steam. These traps are used in important power plants all over the world and have been accepted as standard in the majority of high pressure plants in the United States. Available with screwed or flanged connections, they are used for high pressure or high temperature duty and for low or medium pressure service where fire and explosion hazards make iron fittings undesirable. (*Complete data in Catalog H.*)

FOR EXTREME CONDENSATE LOADS

Armstrong Compound Traps are designed for draining steam purifiers, separators, flash tanks, continuous blowdown systems and all other steam using equipment producing very large volumes of condensate. An inverted bucket mechanism controls a piston-operated valve with a much larger orifice than would be practical in a standard trap. *Ask for Catalog H.*

FOR DRAINING LIQUID FROM GAS OR VENTING GAS FROM LIQUID

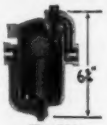
No. 71 Snap-Action Ball Float Air Trap recommended for ordinary service . . . no priming, no air loss. Where oil and dirt conditions are severe, use inverted bucket trap. No. 21 is low cost ball float. No. 22, 23, 24 are compound lever ball float. Liquid from gas, Bulletin 2021. Air Relief, Bulletin 206.

STEAM HUMIDIFIERS

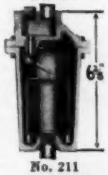
Complete automatic units introduce dry steam into atmosphere to maintain desired relative humidity within close limits. Electric or air operated. Simple, economical, dependable. Big capacity. No dripping, no extra load on heating system. Easy to install like a unit heater. *Ask for Bulletin 1771.*

REFRIGERANT GAS PURGERS

Automatically remove air and other non-condensables from refrigerating systems with almost no loss of refrigerant. Forged steel body. Corrosion-resistant stainless mechanism. *Bulletin 192.*



No. 811

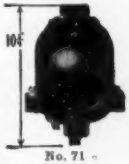


No. 211

No. 313

No. 3211 — a low-priced forged steel trap for pressures to 250 psi. Ideal for "all-steel" installations

No. 233



No. 71

C-2

No. 370

Trap Size	Pipe Size Inches	Max. psi	Capacity at Max psi Lbs./hr	List Price
(Side-Inlet, Side-Outlet)				
800	½ or ¾	125	680	$ 7.00
811	½ or ¾	250	760	10.00
812	½ or ¾	250	1300	16.00
813	½ or ¾	250	3500	22.00
(Bottom-Inlet, Top-Outlet)				
211	½	250	760	9.25
212	½ or ¾	250	1300	15.00
213	½ or ¾	250	3500	20.75
214	1	250	5700	29.00
215	1 or 1¼	250	7000	38.00
216	1½ or 2	250	19,000	55.00
(Forged Carbon Steel)				
3211	½	450	760	14.00
312	½ or ¾	600	2200	35.00
313	½ or ¾	600	2450	56.00
315	1 or 1¼	600	5600	100.00
316	1½ or 2	600	14,000	200.00
(Forged Moly Steel)				
413	½ or ¾	900	2750	75.00
415	1 or 1¼	900	4400	120.00
416	1½ or 2	900	12,000	225.00
(Forged Chrome Moly Steel)				
515	1 or 1¼	1500	5400	325.00
(Cast Semi-Steel Compound Traps)				
233	1	250	26,500	159.00
235	2	250	73,500	209.50
237	3	250	160,000	250.00
239	6	50	300,000	400.00
(Forged Steel Compound Traps)				
333	1	600	37,000	279.00
335	2	600	105,000	359.50
337	3	600	240,000	525.00
(Air Traps)				
21	½ or ¾	125	800	11.00
71	¾ or 1	250	1300	30.00
71–315	1 or 1¼	1000	800	100.00
22	½ or ¾	250	650	24.75
23	1 or 1¼	250	1500	45.00
24	1½ or 2	250	4500	67.00

(Steam Humidifiers)

Type	Operation	Cap Lbs. Steam/Hr at 10 Psi	Steam Dispersal	List Price*
C-2	Electric	60	Fan	120.00
VC-2	Electric	60	Venturi	102.00
MC-2	Manual	60	Venturi	72.50
C-3	Electric	126	Fan	214.25
CK-4	Electric	610	Air Stream	325.50
A-12	Air	60	Jet or Venturi	200.00
AK-14	Air	610	Air Stream	375.00

* 110V, 60 cycle.

(Refrigerant Gas Purgers)

Model	Refrigerants	Max. psi	Net Wt.	List Price
370	Ammonia Freon, etc.	300	100 lbs.	$200.00
371	CO_2	1500	228 lbs.	350.00

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Chase Brass & Copper Co. 236 Grand St. Waterbury 20. Conn.
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Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
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Westinghouse Elec Corp. Sturtevant Div. Hyde Park. Boston 36. Mass.
Wing. L J. Mfg Co. Linden. N. J.

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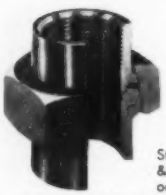

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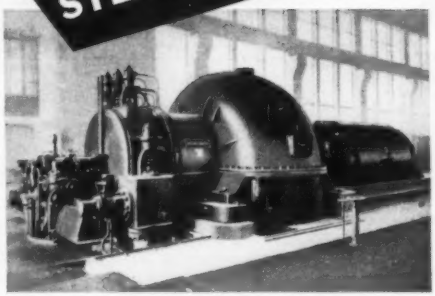

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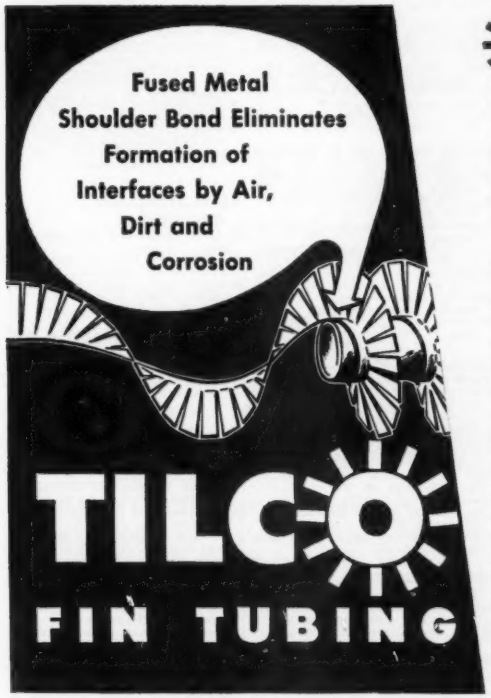

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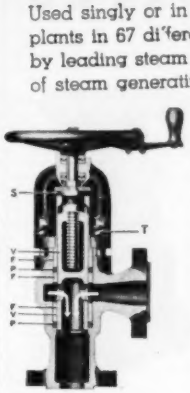
Used singly or in tandem in more than 15,000 plants in 67 different industries. Recommended by leading steam plant designers and builders of steam generating equipment.



Seatless Type

Made in several styles for working pressures up to 1500 lbs. Angle and straightway.

OPERATION: After valve has been closed, shoulder S on plunger V contacts upper follower gland F, forcing it down into body and compressing packing P above and below port, making an absolutely tight valve. Yoke tension springs T maintain continuous compression on packing train. Alemite lubrication of plunger and stem.

Send for celluloid working model and Bulletins B-424 and B-433.

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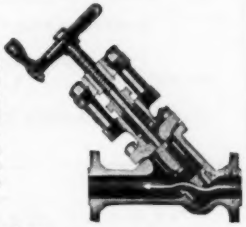
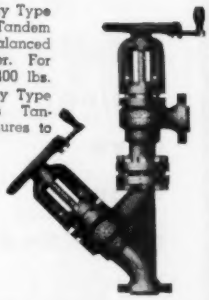
Made in several styles for working pressures from 400 to 2500 lbs. Angle and straightway (shown). Stellited seat and disk. A worthy companion to the Yarway Seatless Valve, and frequently used in Tandem with the Seatless Valve for higher pressures.



Tandems

Fig. 1

Fig. 1. Yarway Type "B" Seatless Tandem Valve with balanced sliding plunger. For pressures to 400 lbs.
Fig. 2. Yarway Type "C" Seatless Tandem for pressures to 600 lbs.



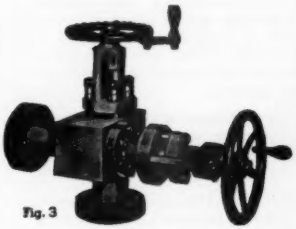


Fig. 3

Fig. 3. Yarway Unit Tandem Valve in which hard seat valve and seatless valve are mounted together in one-piece forged steel body. Pressures 600 to 2,500 lbs.

Write for Bulletins B-424 and B-433.

See other Yarway Advertisements on pages 84, 89, 118, 131

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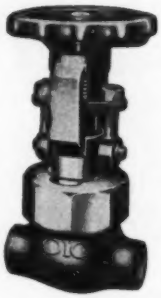

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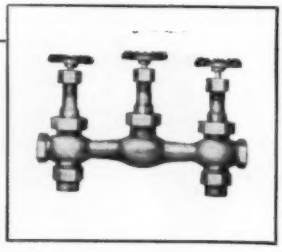

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Available in bronze with bronze or stainless trim, in sizes from ½ to 2 inches, for pressures from 150 to 300 lbs.; also in cast steel with stainless trim in sizes from 1 to 2 inches for pressures from 300 to 600 lbs.

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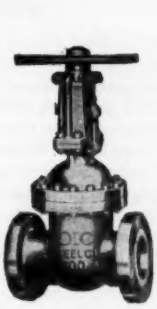
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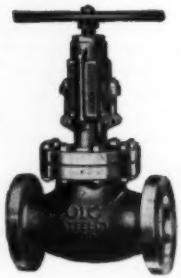

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Dole Valve Co, 1913 W Carroll Ave. Chicago 12. Ill.
Edward Valves Inc. 1200 W 145th St. East Chicago. Ind.
Faber Engrg Co. Amber & Westmoreland Sts. Phila 34. Pa.
Fairbanks Co. 393 Lafayette St. New York 3. N. Y.
Flori Pipe Co. 601 E Red Bud Ave. St. Louis. Mo.
Hammel-Dahl Co. 243 Richmond St. Providence 3. R. I.
Helicoid Div. American Chain & Cable Co Inc. Bridgeport 2. Conn.
Imperial Brass Mfg Co, 1200 W Harrison St. Chicago 7. Ill.
Jarecki Valve Div, 1150 N Peoria. Tulsa. Okla.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Lonergan, J E Co. 209 Race St. Phila 6. Pa.
Lunkenheimer Co. P O Box 360. Annex Station. Cincinnati 14. Ohio
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Nugent. Wm W. & Co. Inc. 402 N Hermitage Ave. Chicago 22. Ill.
Ohio Brass Co. 380 N Main St. Mansfield 7. Ohio
Ohio Injector Co. 108 Pine St. Wadsworth. Ohio
Oil-Rite Corp. 3478 S 13th St. Milwaukee 15. Wis.
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Pittsburgh Valve & Fittings Corp. Barberton. Ohio
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
R-P & C Valve Div. American Chain & Cable Co. Inc. Reading. Pa.
Schaible Co. 1086 Summer St. Cincinnati. Ohio
Shaw. Benjamin P Co. 2nd & Lombard Sts. Wilmington 99. Dela.
Smith. S Morgan. Co. 500 Lincoln St. York. Pa.
Stockham Valves & Fittings. 4000 10th Ave. Birmingham. Ala.
Strong. Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13. Ohio
Thornhill-Craver Co Inc. 1111 Lockwood Dr. Houston 1. Texas
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Walworth Co. 60 E 42nd St. New York 17. N. Y.
Watson Stillman Co. 108 Aldene Rd. Roselle. N. J.

VALVES, NON-RETURN

Buell Engrg Co. Inc. 70 Pine St. New York 5. N. Y.
Chapman Valve Mfg Co. 203 Hampshire St. Indian Orchard. Mass.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8. Ill.
Edward Valves Inc. 1200 W 145th St. East Chicago. Ind.
Fairbanks Co. 393 Lafayette St. New York 3. N. Y.
Fisher Governor Co. Marshalltown. Iowa
Flori Pipe Co. 601 E Red Bud Ave. St Louis. Mo.
Foster Engrg Co. 835 Lehigh Ave. Union. N. J.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22. Pa.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Kennedy Valve Mfg Co. 1060 E Water St. Elmira. N. Y.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
Lunkenheimer Co. P O Box 360 Annex Station. Cincinnati 14. Ohio
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
R-S Products Corp. 4600 Germantown Ave. Philadelphia 44. Pa.
Ruggles-Klingemann Mfg Co. Foster Court. Salem. Mass.
Schaible Co. 1086 Summer St. Cincinnati. Ohio
Schutte & Koerting Co. Cornwells Heights. Bucks County. Pa.
Walworth Co. 60 E 42nd St. New York 17. N. Y.

VALVES, PLUG

American Car & Foundry Co. 30 Church St. N. Y. 7. N. Y.
Ampco Metal. Inc. 1701 S 38th St. Milwaukee 4. Wis.
Clow. James B. & Sons. 201-299 N Talman Ave. Chicago 12. Ill.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Faber Engrg Co. Amber & Westmoreland Sts. Philadelphia 34. Pa.
Fairbanks Co. 393 Lafayette St. New York 3. N. Y.
Flori Pipe Co. 601 E Red Bud Ave. St. Louis. Mo.
Homestead Valve Mfg Co. P O Box 210. Coraopolis. Pa.
Hunt. Rodney Machine Co. Orange. Mass.
Imperial Brass Mfg Co. 1200 W Harrison St. Chicago 7. Ill.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
Klingerit Inc. 16 Hudson St. New York 13. N. Y.
Ludlow Valve Mfg Co Inc. Troy. N. Y.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
McNally Pittsburg Mfg Corp. Pittsburg. Kansas
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Mueller Co. 512 W Cerro Gordo St. Decatur 70. Ill.
National Airoil Burner Co. 1276 E Sedgley Ave. Philadelphia 34. Pa.
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Pittsburgh Valve & Fittings Corp. Barberton. Ohio
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
R-P & C Valve Div. American Chain & Cable Co. Inc. Reading. Pa.
Schaible Co. 1086 Summer St. Cincinnati. Ohio
Shaw. Benjamin P Co. 2nd & Lombard Sts. Wilmington 99. Dela.
Smith. S Morgan. Co. 500 Lincoln St. York. Pa.
Stockham Valves & Fittings. 4000 10th Ave. Birmingham. Ala.
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Walworth Co. 60 E 42nd St. New York 17. N. Y.
Watson Stillman Co. 108 Aldene Rd. Roselle. N. J.
Welsbach Corp. 1500 Walnut St. Philadelphia 2. Pa.

VALVES, PUMP AND COMPRESSOR

Anchor Packing Co. 401 N Broad St. Philadelphia 8. Pa.
Atlas Valve Co. 280-84 South St. Newark 5. N. J.
Barksdale Valves. 1566 E Slauson Ave. Los Angeles 11. Calif.
Birch Mfg Co. 1521-23 Sedgwick St. Chicago 10. Ill.
Cash. A W. Valve Mfg Corp. 6616 E Wabash Ave. Decatur. Ill.
Dick. R & J. Co Inc. 28 Sade St. Passaic. N. J.
Durabla Mfg Co. 114 Liberty St. New York 6. N. Y.
Parris Engrg Co. 400 Commercial Ave. Palisades Park. N. J.
Fisher Governor Co. Marshalltown. Iowa
Foster Engrg Co. 835 Lehigh Ave. Union. N. J.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Hill Pump Valve Co. 2728 Elston Ave. Chicago 47. Ill.
Hollow Center Packing Co. 6523 Euclid Ave. Cleveland 3. Ohio
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Kennedy Valve Mfg Co. 1060 E Water St. Elmira. N. Y.
Manning. Maxwell & Moore Inc. 11 Elias St. Bridgeport 2. Conn.
Marlo Co. Inc. 434 Broadway. New York 13. N. Y.
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
Quaker Rubber Div. H K Porter Co. 4915 Comly St. Phila 24. Pa.
R-S Products Corp. 4600 Germantown Ave. Philadelphia 44. Pa.
Schaible Co. 1086 Summer St. Cincinnati. Ohio
Sims Pump Valve Co Inc. 145 Hudson St. New York 13. N. Y.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.
Voss. J H H. Co Inc. 785 E 144th St. New York 54. N. Y.
Voss Machine Wks. 242 E 122nd St. New York. N. Y.
Waters Governor Co. 53 Waters Ave. Everett 49. Mass.
Watts Regulator Co. 10 Embankment St. St Lawrence. Mass.
Williams Gauge Co. 2055 Pennsylvania Ave. Pittsburgh 33. Pa.

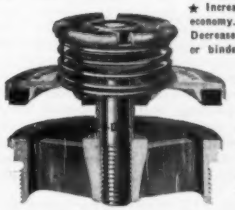
VALVES, RADIATOR, HEATING

Barber-Colman Co. Rockford. Ill.
Barnes & Jones Inc. 128 Brookside Ave. Boston 30. Mass.
Cashin. W D Co. 69 "A" St. Boston 27. Mass.
Chase Brass & Copper Co. 236 Grand St. Waterbury 20. Conn.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Cryer Trap & Valve Co Inc. 366 Madison Ave. N. Y. 17. N Y.
Dole Valve Co. 1913 W Carroll Ave. Chicago 12. Ill.
Dunham. C A Co. 400 W Madison St. Chicago 6. Ill.
Fairbanks Co. 393 Lafayette St. New York 3. N. Y.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4. Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Hoffman Specialty Co. 1001 York St. Indianapolis 7. Ind.
Homestead Valve Mfg Co. P O Box 210. Coraopolis. Pa.
Illinois Engrg Co. Racine Ave & 20th Place. Chicago 8. Ill.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
Kennedy Valve Mfg Co. 1060 E Water St. Elmira. N. Y.
Marsh. Jas P. Corp. Skokie. Ill.
Minneapolis-Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Ohio Brass Co. 380 N Main St. Mansfield 7. Ohio
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
R-P & C Valve Div. American Chain & Cable Co. Inc. Reading. Pa.
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Schaible Co. 1086 Summer St. Cincinnati. Ohio
Sterling Inc. 3713 N Holton St. Milwaukee 12. Wis.
Trane Co. LaCrosse. Wis.
Webster. Warren & Co. 17th & Federal Sts. Camden. N. J.
Welsbach Corp. 1500 Walnut St. Philadelphia 2. Pa.

VALVES, REDUCING, REGULATING

Associated Valve & Engrg Co. 1150 W Marquette Rd. Chicago 21. Ill.
Atlas Valve Co. 280-84 South St. Newark 5. N. J.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10. Ohio
Bell & Gossett Co. 8200 N Austin Ave. Morton Grove. Ill.
Birch Mfg Co. 1521-23 Sedgwick St. Chicago 10. Ill.
Brooke Engrg Co Inc. 4517 Wayne Ave. Philadelphia 20. Pa.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Cash. A W Co. Decatur 7. Ill.
Cash. A W Valve Mfg Corp. 6616 E Wabash Ave. Decatur. Ill.
Clark Mfg Co. 1830 E 38th St. Cleveland 14. Ohio
Climax Controls Div. Black. Sivalls & Bryson Inc. Box 1529. Tulsa 1. Okla.
Coen Co. 40 Boardman Place. San Francisco 3. Calif.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8. Ill.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
Dockson Corp. 3839 Wabash Ave. Detroit 8. Mich.
Dunham. C A Co. 400 W Madison St. Chicago 6. Ill.
Eclipse Fuel Engrg Co. 711 S Main St. Rockford. Ill.
Eddington Metal Specialty Co. P O Box K. Eddington. Pa.
Eisler Engrg Co Inc. 757 S 13th St. Newark 3. N. J.
Parris Engrg Co. 400 Commercial Ave. Palisades Park. N. J.
Fisher Governor Co. Marshalltown. Iowa
Foster Engrg Co. 835 Lehigh Ave. Union. N. J.
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4. Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
General Metals Corp. 18th & Florida Sts. San Francisco 10. Calif.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22. Pa.
Hagan Corp. Hagan Blvd. Pittsburgh 30. Pa.
Hammel-Dahl Co. 243 Richmond St. Providence 3. R. I.
Hoffman Specialty Co. 1001 York St. Indianapolis 7. Ind.
Kaye & MacDonald Inc. 11-15 Central Ave. West Orange. N. J.
Keckly. O C. Co. 400 W Madison St. Chicago 6. Ill.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton Ohio
Kunkel Valve Co. 119 S Clinton St. Fort Wayne 2. Ind.
Leslie Co. 255 Grant Ave. Lyndhurst. N. J.
Locke Regulator Co. Walters & Osborne St. Salem. Mass.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Mason-Neilan Regulator Co. 1190 Adams St. Boston 24. Mass.
Meeron Regulator Co. 2357 N 29th St. Milwaukee 10. Wis.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Mueller Co. 512 W Cerro Gordo St. Decatur 70. Ill.
Northern Equipment Div. Continental Foundry & Machine Co. 1945 Grove Drive. Erie. Pa.
Norwalk Valve Co. 33 Railroad Ave. South Norwalk. Conn.

BIRCH PUMP VALVES



★ Increase efficiency, pump capacity and economy. Minimize slippage and leakage. Decrease fuel consumption. No screws, nuts or binder plates to work loose.

Metal back withstands pressure strains. Rubber composition discs seal the valve. The Birch Pump Valve will not warp, curl or break; nor sink into the ports or ride the bridges of the seat.

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Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
R-S Products Corp. 4600 Germantown Ave. Philadelphia 44. Pa.
Republic Flow Meters Co. 2222 Diversey Parkway. Chicago 47. Ill.
Ruggles-Klingemann Mfg Co. Foster Court. Salem. Mass.
Schade Valve Mfg Co. 2527 N Bodine St. Philadelphia 33. Pa.
Schutte & Koerting Co. Cornwells Heights. Bucks County. Pa.
Smith. S Morgan. Co. 500 Lincoln St. York. Pa.
Spence Engrg Co Inc. Walden. N. Y.
Squires. C E Co. 18502 Syracuse Ave. Cleveland 10. Ohio
Staples & Pfeiffer. 528 Bryant St. San Francisco 7. Calif.
Stickle Steam Specialty Co. 2265 Valley Ave. Indianapolis 1. Ind.
Strong. Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13. Ohio
Swartwout Co. 18511 Euclid Ave. Cleveland 12. Ohio
Taco Heaters Inc. 137 South St. Providence. R. I.
Tagliabue. C J Mfg Co. 614 Frelinghuysen Ave. Newark 5. N. J.
Thornhill-Craver Co Inc. 1111 Lockwood Dr. Houston 1. Texas
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.
Vickers Inc. 1596 Oakman Blvd. Detroit 32. Mich.
Waters Governor Co. 53 Waters Ave. Everett 49. Mass.
Watts Regulator Co. 10 Embankment St. Lawrence. Mass.

VALVES, REFRIGERATION

Alco Valve Co. 865 Kingsland Ave. St Louis 5. Mo.
Barksdale Valves. 1566 E Slauson Ave. Los Angeles 11. Calif.
Cash. A W Co. Decatur 7. Ill.
Cash. A W Valve Mfg Corp. 6616 E Wabash Ave. Decatur. Ill.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Frick Co. W Main St. Waynesboro. Pa.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Henry Valve Co. 3215 North Ave. Melrose Park. Ill.
Imperial Brass Mfg Co. 1200 W Harrison St. Chicago 7. Ill.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Klingerit Inc. 14 Hudson St. New York 13. N. Y.
Marsh. James P. Corp. Skokie. Ill.
Penn Electric Switch Co. Goshen. Ind.
Stack Heater Co. 80 Batterymarch St. Boston 10. Mass.
Spence Engrg Co Inc. Walden. N. Y.
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Voss. J H H Co Inc. 785 E 144th St. New York 54. N. Y.
Voss Machine Wks. 242 E 122nd St. New York. N. Y.
Worthington Pump & Machinery Corp. Harrison. N. J.
York Corp. York. Pa.

VALVES, RELIEF, AIR, GAS

Anderson. V D. Co. 1935 W 96th St. Cleveland 2. Ohio
Associated Valve & Engrg Co. 1150 W Marquette Rd. Chicago 21. Ill.
Black. Sivalls & Bryson Inc. Power & Light Bldg. Kansas City. 6. Mo.
Cash. A W Co. Decatur 7. Ill.
Cash. A W Valve Mfg Corp. 6616 E Wabash Ave. Decatur. Ill.
Cochrane Corp. 17th St & Allegheny Ave. Philadelphia 32. Pa.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Crosby Steam Gage & Valve Co. Kendrick St. Wrentham. Mass.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8. Ill.
De Vilbiss Co. 300 Phillips Ave. Toledo. Ohio
Eddington Metal Specialty Co. P O Box K. Eddington. Pa.
Edward Valves Inc. 1200 W 145th St. East Chicago. Ind.
Farris Engrg Co. 400 Commercial Ave. Palisades Park. N. J.
Fisher Governor Co. Marshalltown. Iowa
Fiori Pipe Co. 601 E Red Bud Ave. St Louis. Mo.

Swartwout PRESSURE REDUCING VALVES and DESUPERHEATERS

Type C and G Valves
Bulletin S-22-C

V-1, V-2 and V10 Valves
Bulletins S-198, S-199, S-208-A

Desuperheaters
Bulletin S-21-E

Swartwout valves are of the automatic diaphragm operated type, either direct acting or actuated by compressed air through master controls.

Spring-opening C or spring-closing G series, in double or single-seated designs, are for medium pressure and medium-pressure drops. Furnished with quick-opening poppet or gradual-opening parabolic port restrictions.

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Swartwout carburetor, steam and mechanical atomizing desuperheaters thoroughly atomize water to assure complete evaporation. Steam and mechanical atomizing types are ideal in lines where no pressure drop is permissible.

If you have a problem in reducing or desuperheating, write for special bulletins or contact your nearest Swartwout representative. The Swartwout Company, 18511 Euclid Avenue, Cleveland 12, Ohio. A-3038

Swartwout
POWER PLANT EQUIPMENT

Foster Engrg Co. 835 Lehigh Ave. Union. N. J.
Frick Co. W Main St. Waynesboro. Pa.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4. Tenn.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22. Pa.
Henry Valve Co. 3215 North Ave. Melrose Park. Ill.
Hoffman Specialty Co. 1001 York St. Indianapolis 7. Ind.
Inferno Co. 115 Ricou St. Shreveport. La.
Johnston & Jennings Co. 6917 Bessemer Ave. Cleveland 3. Ohio
Keckley. O C. Co. 400 W Madison St. Chicago 6. Ill.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton. Ohio
Kunkle Valve Co. 119 S Clinton St. Fort Wayne 2. Ind.
Leahy Mfg Co. 1804 E 8th St. Los Angeles 21. Calif
Lonergan. J E Co. 211 Race St. Phila 6. Pa.
Lunkenheimer Co. P O Box 360. Annex Station. Cincinnati 14. Ohio
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
Manning. Maxwell & Moore, Inc. 11 Elias St. Bridgeport 2. Conn.
Mason-Neilan Regulator Co. 1190 Adams St. Boston 24. Mass.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Norwalk Valve Co. 33 Railroad Ave. South Norwalk. Conn.
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
Rockwell. W S Co. 200 Eliot St. Fairfield. Conn.
Schaible Co. 1086 Summer St. Cincinnati. Ohio
Schade Valve Mfg Co. 2527 N Bodine St. Phila 33. Pa.
Simplex Valve & Meter Co. 6780 Upland St. Philadelphia 42. Pa.
Spence Engrg Co Inc. Walden. N. Y.
Stack Heater Co. 80 Batterymarch St. Boston 10. Mass.
Staples & Pfeiffer. 528 Bryant St. San Francisco 7. Calif.
Taco Heaters Inc. 137 South St. Providence. R. I.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.
Voss. J H H. Co Inc. 785 E 144th St. New York 54. N. Y.
Watts Regulator Co. 10 Embankment St. Lawrence. Mass.
Weisbach Corp. 1500 Walnut St. Philadelphia 2. Pa.

VALVES, RELIEF, OIL, WATER ETC.

Andale Co. 1604 Arch St. Philadelphia. Pa.
Associated Valve & Engrg Co. 1150 W Marquette Rd. Chicago 21. Ill.
Atlas Valve Co. 260-84 South St. Newark 5. N. J.
Baldwin - Lima - Hamilton Corp. Paschall P O. Philadelphia 42. Pa.
Bell & Gossett Co. 8200 N Austin Ave. Morton Grove. Ill.
Blackhawk Mfg Co. 5325 W Rogers St. Milwaukee 1. Wis.
Black. Sivalls & Bryson Inc. Power & Light Bldg. Kansas City 6. Mo.
Cash. A W Co. Decatur 7. Ill.
Cash. A W Valve Mfg Corp. 6616 E Wabash Ave. Decatur. Ill.
Cochrane Corp. 17th St & Allegheny Ave. Philadelphia 32. Pa.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Crosby Steam Gage & Valve Co. Kendrick St. Wrentham. Mass.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8. Ill.
Eddington Metal Specialty Co. P O Box K. Eddington. Pa.
Edward Valves Inc. 1200 W 145 St. East Chicago. Ind.
Electrol Inc. 85 Grand St. Kingston. N. Y.
Farris Engrg Co. 400 Commercial Ave. Palisades Park. N. J.
Foster Engrg Co. 835 Lehigh Ave. Union. N. J.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4. Tenn.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22. Pa.
Greer Hydraulics Inc. 454 18th St. Brooklyn. N. Y.
Hendy. Joshua. Iron Wks. Sunnyvale. Calif.
Inferno Co. 115 Ricou St. Shreveport. La.
Johnston & Jennings Co. 6917 Bessemer Ave. Cleveland 3. Ohio
Keckley. O C. Co. 400 W Madison St. Chicago 6. Ill.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton. Ohio
Kunkle Valve Co. 119 S Clipton St. Fort Wayne 2. Ind.
Leahy Mfg Co. 1804 E 8th St. Los Angeles 21. Calif.
Locke Regulator Co. Walters & Osborne St. Salem. Mass.
Lonergan. J E Co. 211 Race St. Phila 6. Pa.
Lunkenheimer Co. P O Box 360. Annex Station. Cincinnati 14. Ohio
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
McDonnell & Miller. Inc. 3500 N Spaulding Ave. Chicago 18. Ill.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Mason-Neilan Regulator Co. 1190 Adams St. Boston 24. Mass.
Monarch Mfg Wks Inc. 2501 E Ontario St. Phila 34. Pa.
Mueller Co. 512 W Cerro Gordo St. Decatur 70. Ill.
National Airoil Burner Co. 1276 E Sedgley Ave. Philadelphia 34. Pa.
Penn Electric Switch Co. Goshen. Ind.
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
Rockwood Sprinkler Co. 38 Harlow St. Worcester 5. Mass.
Schade Valve Mfg Co. 2527 N Bodine St. Phila 33. Pa.
Schutte & Koerting Co. Cornwells Heights. Bucks County. Pa.
Smith. S Morgan. Co. 500 Lincoln St. York. Pa.
Spence Engrg Co Inc. Walden. N. Y.
Stack Heater Co. 80 Batterymarch St. Boston 10. Mass.
Staples & Pfeiffer. 528 Bryant St. San Francisco 7. Calif.
Taco Heaters Inc. 137 South St. Providence. R. I.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.
Vickers Inc. 1596 Oakman Blvd. Detroit 32. Mich.
Watson Stillman Co. 108 Aldene Rd. Roselle. N. J.
Watts Regulator Co. 10 Embankment St. Lawrence. Mass.
Weisbach Corp. 1500 Walnut St. Philadelphia 2. Pa.

VALVES, SAFETY

Associated Valve & Engrg Co. 1150 W Marquette Rd. Chicago 21. Ill.
Bell & Gossett Co. 8200 N Austin Ave. Morton Grove. Ill.
Blackhawk Mfg Co. 5325 W Rogers St. Milwaukee 1. Wis.
Black. Sivalls & Bryson Inc. Power & Light Bldg. Kansas City 6. Mo.
Cash. A W Valve Mfg Corp. 6166 E Wabash Ave. Decatur. Ill.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Crosby Steam Gage & Valve Co. Kendrick St. Wrentham. Mass.
Eclipse Fuel Engrg Co. 711 S Main St. Rockford. Ill.
Farris Engrg Co. 400 Commercial Ave. Palisades Park. N. J.
Foster Engrg Co. 835 Lehigh Ave. Union. N. J.
Frick Co. W Main St. Waynesboro. Pa.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Henry Valve Co. 3215 North Ave. Melrose Park. Ill.
Inferno Co. 115 Ricou St. Shreveport. La.
Jarecki Valve Div. 1150 N Peoria. Tulsa. Okla.
Keckley. O C. Co. 400 W Madison St. Chicago 6. Ill.
Koppers Co. Inc. 200 Scott St. Baltimore. Md.
Kunkle Valve Co. 119 S Clinton St. Fort Wayne 2. Ind.
Lonergan. J E Co. 211 Race St. Phila 6. Pa.
Lunkenheimer Co. P O Box 360. Annex Station. Cincinnati 14. Ohio
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
North American Mfg Co. 4455 E 71st St. Cleveland 5. Ohio
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
Ruggles-Klingeman Mfg Co. 4 Foster St. Salem. Mass.
Stack Heater Co. 80 Batterymarch St. Boston 10. Mass.
Staples & Pfeiffer. 528 Bryant St. San Francisco 7. Calif.

Symmons Engrg Co. 791 Tremont St. Boston 18. Mass.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.
Vickers Inc. 1596 Oakman Blvd. Detroit. Mich.
Weisbach Corp. 1500 Walnut St. Philadelphia 2. Pa.

VALVES, SOLENOID

Alco Valve Co. 865 Kingsland Ave. St Louis 5. Mo.
Associated Valve & Engrg Co. 1150 W Marquette Rd. Chicago 21. Ill.
Automatic Switch Co. 391 Lakeside Ave. Orange. N. J.
Barber-Colman Co. Rockford. Ill.
Barksdale Valves. 1566 E Slauson Ave. Los Angeles 11. Calif.
Central Automatic Sprinkler Co. 4th & Cannon Ave. Lansdale. Pa.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1. N. Y.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1. Wis.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8. Ill.
Electrol Inc. 85 Grand Ave. Kingston. N. Y.
Frick Co. W Main St. Waynesboro. Pa.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
General Electric Co. Schenectady 5. N. Y.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22. Pa.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Hauck Mfg Co. 136 10th St. Brooklyn 15. N. Y.
Johnson Corp. 805 Wood St. Three Rivers. Mich.
Keckley. O C. Co. 400 W Madison St. Chicago 6. Ill.
Locke Regulator Co. Walters & Osborne St. Salem. Mass.
McDonnell & Miller. Inc. 3500 N Spaulding Ave. Chicago 18. Ill.
Marsh. James P. Corp. Skokie. Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
National Airoil Burner Co. 1276 E Sedgely Ave. Philadelphia 34. Pa.
Nicholson. W H. & Co. 125 Oregon St. Wilkes-Barre. Pa.
North American Mfg Co. 4455 E 71st St. Cleveland 5. Ohio
Northern Equipment Div. Continental Foundry & Machine Co. 1945 Grove Drive. Erie. Pa.
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12. Ohio
Paul Valve Corp. 683 Third Ave. New York 17. N. Y.
Penn Electric Switch Co. Goshen. Ind.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7. Wis.
R-S Products Corp. 4600 Germantown Ave. Philadelphia 44. Pa.
Rockwell. W S. Co. 200 Eliot St. Fairfield. Conn.
Ruggles-Klingemann Mfg Co. Foster Court. Salem. Mass.
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Square D Co. 4041 N Richards St. Milwaukee 12. Wis.
Supreme Electric Products Corp. 194 Vassar St. Rochester 7. N. Y.
Wheelco Instruments Co. 847 W Harrison St. Chicago 7. Ill.

VALVES, THERMOSTATIC

Alco Valve Co. 865 Kingsland Ave. St. Louis 5. Mo.
Atlas Valve Co. 280-84 South St. Newark 5. N. J.
Bristol Co. Waterbury 91. Conn.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
Dole Valve Co. 1913 W Carroll Ave. Chicago 12. Ill.
Farris Engrg Corp. 400 Commercial Ave. Palisades Park. N. J.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4. Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Illinois Engrg Co. Racine Ave & 20th Place. Chicago 8. Ill.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton. Ohio
Leslie Co. 255 Grant Ave. Lyndhurst. N. J.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Minneapolis - Honeywell Regulator 2753 Fourth Ave S. Minneapolis 8. Minn.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
Ruggles-Klingemann Mfg Co. Foster Court. Salem. Mass.
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Spence Engrg Co Inc. Walden. N. Y.
Stack Heater Co. 80 Batterymarch St. Boston 10. Mass.
Sterling Inc. 3713 N Holton St. Milwaukee 12. Wis.
Symmons Engrg Co. 791 Tremont St. Boston 18. Mass.
Watts Regulator Co. 10 Embankment St. Lawrence. Mass.

VENTILATING SYSTEMS, VENTILATORS

Allen. E H. Co. 22 Dorrance St. Boston 29. Mass.
American Blower Corp. Detroit 32. Mich.
Arex Co. 333 N Michigan Ave. Chicago 1. Ill.
Burt Mfg Co. 47 E South St. Akron 11. Ohio
Campbell Heating. E K Co. 1809 Manchester Ave. Kansas City. Mo.
Carrier Corp. 300 S Geddes St. Syracuse 1. N. Y.
Chelsea Fan & Blower Co. Inc. 639 South Ave. Plainfield. N. J.
DeBothezat Fans Div. American Machine & Metals Inc. East Moline. Ill.
Diehl Mfg Co. 1142 Finderne Ave. Somerville. N. J.
Dravo Corp. Dravo Bldg. Pittsburgh 22. Pa.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17. N. Y.
Hartzell Propeller Fan Co. Downing St. Piqua. Ohio
Ilg Electric Ventilating Co. 2850 N Crawford Ave. Chicago 41. Ill.
International Engrg Inc. P O Box 973. Dayton 1. Ohio
Johnson Fan & Blower Corp. 1319 W Lake St. Chicago 7. Ill.
Kirk & Blum Mfg Co. 2874 Spring Grove Ave. Cincinnati 25. Ohio
Moore Co. Marceline. Mo.

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IT SAVED $75,000 IN PIPING WITH A $5,000 VALVE INVESTMENT**

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7676 414 Commercial Avenue Palisades Park. N. J.

Nelson, Herman Div American Air Filter Co. 1824 3rd Ave. Moline, Ill.
Newcomb-Detroit Co. 5741 Russell St. Detroit 11. Mich.
Robbins & Myers Inc. 1345 Lagonda Ave. Springfield. Ohio
South Bend Air Products. Inc. 322 E Colfax Ave. South Bend. 22. Ind.
South Bend Electric Co. 322 E Colfax Ave. South Bend 22. Ind.
Swartwout Co. 18511 Euclid Ave. Cleveland 12. Ohio
Trane Co. LaCrosse. Wis.
U. S. Air Conditioning Corp. Como Ave S E at 33rd St. Minneapolis 14. Minn.
Voss Machine Works. 242 E 122nd St. New York. N. Y.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Westinghouse Elec Corp. Sturtevant Div. Hyde Park. Boston 36. Mass.
Wing. L J. Mfg Co. Linden. N. J.

VIBRATORS, BIN, CAR, CHUTE AND HOPPER

Beaumont Birch Co. 1505 Race St. Philadelphia 2. Pa.
Cleco Div. Reed Roller Bit Co. 5125 Clinton Drive. Houston 20. Texas
Jeffrey Mfg Co. 932 N Fourth St. Columbus 16. Ohio
National Conveyor & Supply Co. 346 N Harding Ave. Chicago 24. Ill.
Syntron Co. 492 Lexington. Homer City. Pa.

Look for the noun in the product listing, for example:

Boilers, Waste-Heat

not

Waste-Heat Boilers

VOLTMETERS, INDICATING

Alemite Div. Stewart-Warner Corp. 1826 Diversey Pkwy. Chicago 14, Ill.
Associated Research Inc. 3758 W Belmont Ave. Chicago 18. Ill.
Beckman Instruments Inc. 820 Mission St. South Pasadena. Calif.
Burlington Instrument Co. 203 N 3rd St. Burlington. Iowa
General Electric Co. Schenectady 5, N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
J-B-T Instruments Inc. 441 Chapel St. New Haven 8. Conn.
Hanson-Van Winkle-Munning Co. Church St. Matawan. N. J.
Marion Electrical Instrument Co. Stark St Gate. Manchester. N. H.
Pyramid Instrument Corp. 307 Canal St. New York. N. Y.
Roller-Smith. 1756 W Market St. Bethlehem. Pa.
Simpson Electric Co. 5200 W Kinzie. Chicago 44. Ill.
Sticht. Herman H Co. 27 Park Pl. New York 7. N. Y.
U S Gauge Div. American Machine & Metals Inc. Sellersville. Pa.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.
Wheelco Instruments Co. 847 W Harrison St. Chicago 7. Ill.

VOLTMETERS, RECORDING

Bristol Co. Waterbury 91. Conn.
Esterline-Angus Co 1201 Main St. Indianapolis 6. Ind.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N Y C 17. N. Y.
Hanson-Van Winkle-Munning Co. Church St. Matawan. N. J.
Sticht. Herman H Co. 27 Park Pl. New York 7. N. Y.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Wheelco Instruments Co. 847 W Harrison St. Chicago 7. Ill.

WALLS, BOILER-FURNACE, AIR-COOLED

Allen-Sherman-Hoff Co. 227 S 15th St. Phila 2. Pa.
American Arch Co Inc. 60 E 42nd St. New York 17. N. Y.
Bernitz Furnace Appliance Co. 89 Broad St. Boston 10. Mass.
Bigelow Liptak Corp. 2842 W Grand Blvd. Detroit 2. Mich.
Carborundum Co. Perth Amboy. N. J.
Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22. Ill.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Detrick. M H Co. 111 W Washington St. Chicago 2. Ill.
Green. A P. Fire Brick Co. Mexico. Mo.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
Laclede Christy Co. 3600 Forbes St. Pittsburgh 13. Pa.
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Norton Co. 1 New Bond St. Worcester 6. Mass.
Plibrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14. Ill.
Quigley Co Inc. 527 Fifth Ave. New York 17. N. Y.
Ramtite Co. 2549 W 18th St. Chicago 8. Ill.
Reintjes. Geo P. Co. 2517 Jefferson St. Kansas City. Mo.
Rust Engrg Co. Rust Bldg. Pittsburgh 19. Pa.
Waite Gravity Lock Refractories. 111 Westminster St. Providence 3. R. I.

WALLS, BOILER-FURNACE, PLAIN

Bernitz Furnace Appliance Co. 89 Broad St. Boston 10. Mass.
Bigelow Liptak Corp. 2842 W Grand Blvd. Detroit 2. Mich.
Carborundum Co. Perth Amboy. N. J.
Carolina Refractories Co. Hartsville. S. C.
Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22. Ill.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Crotty Mfg Co. 133-15 35th Ave. Flushing. N. Y.
Detrick M H Co. 111 W Washington St. Chicago 2. Ill.
Green. A P. Fire Brick Co. Mexico. Mo.
Laclede Christy Co. 3600 Forbes St. Pittsburgh 13. Pa.
Mexico Refractories Co. Better Refractories Bldg. Mexico. Mo.
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Norton Co. 1 New Bond St. Worcester 6. Mass.
Palmer Mfg Corp. 21st Ave at Fillmore St. Phoenix. Ariz.
Plibrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14. Ill.
Quigley Co Inc. 527 Fifth Ave. New York 17. N. Y.
Ramtite Co. 2549 W 18th St. Chicago 8. Ill.
Reintjes. Geo P. Co. 2517 Jefferson St. Kansas City. Mo.
Rust Engrg Co. Rust Bldg. Pittsburgh 19. Pa.
Waite Gravity Lock Refractories. 111 Westminster St. Providence 3. R. I.

WALLS, BOILER-FURNACE, WATER-COOLED

American Engrg Co. Aramingo Ave & Cumberland Sts. Philadelphia 25. Pa.
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Bernitz Furnace Appliance Co. 89 Broad St. Boston 10. Mass.
Bigelow Co. Lloyd & River Sts. New Haven 13. Conn.
Bigelow Liptak Corp. 2842 W Grand Blvd. Detroit 2. Mich.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16. N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Crotty Mfg Corp. 133-15 35th Ave. Flushing. N. Y.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor. Delaware
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
Foster Wheeler Corp. 165 Broadway. New York 6. N. Y.
E Keeler Co. 238 West St. Williamsport 3. Pa.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. 16. N. Y. N. Y.
Laclede Christy Co. 3600 Forbes St. Pittsburgh 13. Pa.
Mexico Refractories Co. Better Refractories Bldg. Mexico. Mo.
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Plibrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14. Ill.
Power Piping Div. Blaw-Knox Co. 1525 Pennsylvania Ave. Pittsburgh 12. Pa.
Power Plant Efficiency Co. P O Box 592. Indianapolis 4. Ind.
Quigley Co Inc. 527 Fifth Ave. New York 17. N. Y.
Ramtite Co. 2549 W 18th St. Chicago 8. Ill.
Reintjes. Geo P. Co. 2517 Jefferson St. Kansas City. Mo.
Riley Stoker Corp. 9 Neponset St. Worcester. Mass.
Rust Engrg Co. Rust Bldg. Pittsburgh 19. Pa.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Union Iron Works. 1420 Cascade St. Erie. Pa.
Waite Gravity Lock Refractories. 111 Westminster St. Providence 3. R. I.
Wickes Boiler Co. 512 N Water St. Saginaw. Mich.

WASHERS, AIR

Air & Refrigeration Corp. 475 Fifth Ave. New York 17. N. Y.
American Blower Corp. Detroit 32. Mich.
Bahnson Co. 1001 S Marshall St. Winston-Salem. N. C.
Brady Conveyors Corp. 20 W Jackson Blvd. Chicago 4. Ill.
Buffalo Forge Co. 468 Broadway. Buffalo 3. N. Y.
Campbell Heating. E K Co. 1809 Manchester Ave. Kansas City. Mo.
Carrier Corp. 300 S Geddes St. Syracuse 1. N. Y.
Clarage Fan Co. North & Porter Sts. Kalamazoo 16. Mich.
Fluor Corp. Ltd. 2500 S Atlantic Blvd. Los Angeles 22. Calif.
Murray. D J. Mfg Co. 1024 Third St. Wausau. Wis.
Newcomb-Detroit Co. 5741 Russell St. Detroit 11. Mich.
Peabody Engrg Corp. 580 Fifth Ave. New York 19. N. Y.
Quaker Rubber Div. H K Porter Co. 4915 Comly St. Phila 24. Pa.
Ross J O Engrg Corp. 350 Madison Ave. New York 17. N. Y.
Spray Engrg Co. 114 Central St. Somerville 45. Mass.
Surface Combustion Corp. 2375 Dorr St. Toledo 1. Ohio
Trane Co. LaCrosse. Wis.
U S Air Conditioning Corp. Como Ave. SE at 33rd St. Minneapolis. Minn.
York Corp. York. Pa.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Westinghouse Elec Corp. Sturtevant Div. Hyde Park. Boston 36. Mass.

WATER COLUMNS

Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Ernst Water Column & Gage Co. 250 S Livingston Ave. Livingston. N. J.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22. Pa.
Huyette. Paul B. Co Inc. 401 N Broad St. Philadelphia 8. Pa.
Inferno Co. 115 Ricou St. Shreveport. La.
Jerguson Gage & Valve Co. 87 Fellsway. Somerville. Mass.
Magnetrol Inc. 2110 S Marshall Blvd. Chicago 23. Ill.
Reliance Gauge Column Co. 5902 Carnegie Ave. Cleveland 3. Ohio
Stets Co. 1440 Broadway. New York 18. N. Y.
Williams Gauge Co. 2055 Pennsylvania Ave. Pittsburgh 33. Pa.
Wright-Austin Co. 3245 Wight St. Detroit 7. Mich.
Yarnall-Waring Co. Chestnut Hill. Philadelphia 18. Pa.

WATER TREATMENT, BOILER

Acme Industrial Compounds Corp. 625 S Goodman St. Rochester 7. N. Y.
Aiken-Murray Corp. 131 E 23rd St. New York 10. N. Y.
Alladdin Labs Inc. 68 William St. New York 5. N. Y.
Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
American Cyanamid Corp. 30 Rockefeller Plaza. N. Y. 20. N. Y.
American K A T Corp. Garwood. N. J.
American Locomotive Co. Schenectady 5. N. Y.
American Sand-Banum Co Inc. 9 Rockefeller Plaza. N. Y. 20. N. Y.
Belco Industrial Equip Div Inc. 52 Iowa Ave. Paterson 3. N. J.
Betz. W H & L D. Gillingham & Worth Sts. Philadelphia 24. Pa.
Bird-Archer Co. 400 Madison Ave. New York 17. N. Y.
Brooks Chemicals Inc. 3304 E 67th St. Cleveland. Ohio
Buromin Co. Hagan Bldg. Pittsburgh 30. Pa.
Cochrane Corp. 17th St & Allegheny Ave. Philadelphia 32. Pa.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Continental Asbestos & Refining Corp. 1 Madison Ave. N. Y. 10. N. Y.
Dearborn Chemical Co. Merchandise Mart Plaza. Chicago 54. Ill.
Dominion Chemical Co Inc. 11 W 42nd St. Dept A. N. Y. 18. N. Y.
Drew. E F & Co. 15 E 26th St. New York 10. N. Y.
Electromatic Water Treatment Inc. 475 Fifth Ave. N. Y. 17. N. Y.
Elgin Softener Corp. 130 N Grove Ave. Elgin. Ill.
Feedwater Treatment Corp. 40 Court St. Boston 8. Mass.
Feedwaters. Inc. 140 Cedar St. New York 6. N. Y.
Graver Water Conditioning Co. 216 W 14th St. New York 11. N. Y.
Griscom-Russell Co. 285 Madison Ave. New York 17. N. Y.
Haering. D W & Co. P O Box 6037. Harlandale Sta. San Antonio. Texas
Hagan Corp. Hagan Bldg. Pittsburgh 30. Pa.
Hall Laboratories. Inc. Hagan Bldg. Pittsburgh. Pa.
Heilman Boiler Wks. 132 Linden St. Allentown. Pa.
Heller Laboratories Inc. 196 Morgan St. Jersey City. N. J.
Hungerford & Terry. Inc. 226 Atlantic Ave. Clayton. N. J
Illinois Water Treatment Co. 883 Cedar St. Rockford. Ill.
Inflico Inc. 2750 S 12th Ave. Tucson. Ariz.
Kelite Prod Inc. Box 2917 Terminal Annex. Los Angeles 54. Calif.
LaMotte Chemical Products Co. Towson. Baltimore 4. Md.
Lapp Insulator Co. Inc. 150 Maple St. Le Roy. N. Y.
Layne & Bowler Inc. Box 6815. Hollywood Sta. Memphis 8. Tenn.
McKays Co. 473 Cleveland Ave N. St Paul. Minn.
Madden. P E & Co. 352 W Walton St. Chicago 10. Ill.
Magnus Chemical Co Inc. South Ave. Garwood. N. J.
Maxfal Chemical Co. 33 W 42nd St. New York 18. N. Y.
Monsanto Chemical Co. 1700 S Second St. St Louis 4. Mo.
National Aluminate Corp. 6246 W 66th Place. Chicago 38. Ill.
Pennsylvania Salt Mfg Co. 1000 Widener Bldg. Phila. Pa.
Permutit Co. 330 W 42nd St. New York 18. N. Y.
Perolin Co Inc. 10 E 40th St. New York 16. N. Y.
Polyphase Chem Services. Inc. 150 Nassau St. New York 38. N. Y.
Portland Shingle Co. Chemical Div. 9038 N Denver Ave. Portland 17. Ore.
Proportioneers Inc. 345 Harris Ave. Providence 1. R. I.
Refinite Corp. Box 1312. Omaha. Neb.
Research Products Co. Filter Div. 1015 E Washington Ave. Madison 3. Wis.
Rohm & Haas Co. Resinous Products Div. 222 W Washington Sq. Philadelphia 6. Pa.
Shum Co. 4701 W Electric Ave. Milwaukee 14. Wis.
Standard Chemicals. Inc. 36 Summer St. Natick. Mass.
Sudbury Laboratory. South Sudbury. Mass.

Water Treatment Co of America, 1159 Hodgkiss St, Pittsburgh, Pa.
Western Chemical Co, 713-15 Washington St, Kansas City 6, Mo.
Worthington Pump & Machinery Corp, Harrison, N. J.
Wright Chemical Corp, 617 W Lake St, Chicago 6, Ill.
Xzit Chemical Co, 158-14th St, Hoboken, N. J.

WATER TREATMENT, CONDENSER, COOLING CIRCUIT

Alken-Murray Corp, 131 E 23rd St, New York 10, N. Y.
Alladdin Labs Inc, 68 William St, New York 5, N. Y.
Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee 1, Wis.
American Cyanamid Corp, 30 Rockefeller Plaza, N. Y. 20, N. Y.
American Sand-Banum Co Inc, 9 Rockefeller Plaza, N. Y. 20, N. Y.
American Water Softener Co, S E Cor 4th & Lehigh Aves, Phila 33.
Betz, W H & L D, Gillingham & Worth Sts, Philadelphia 24, Pa.
Bird-Archer Co, 400 Madison Ave, New York 17, N. Y.
Brooks Chemicals Inc, 3304 E 87th St, Cleveland, Ohio
Buromin Co, Hagan Bldg, Pittsburgh 30, Pa.
Butler Engrg Co, 2612 Rousseau St, New Orleans, La.
Carr, Clifford H Co, 614 W 67th St, Kansas City 5, Mo.
Chain Belt Co, 1674 W Bruce St, Milwaukee 4, Wis.
Condenser Service & Engrg Co, Inc, 89 River St, Hoboken, N. J.
Dominion Chemical Co Inc, 11 W 42nd St, Dept A, N. Y. 18, N. Y.
Drew, E F & Co, Inc, 15 E 26th St, New York 10, N. Y.
Electromatic Water Treatment Inc, 475 Fifth Ave, N. Y. 17, N. Y.
Elgin Softener Corp, 130 N Grove Ave, Elgin, Ill.
Feedwaters, Inc, 140 Cedar St, New York 6, N. Y.
Graver Water Conditioning Co, 216 W 14th St, New York 11, N. Y.
Griscom-Russell Co, 285 Madison Ave, New York 17, N. Y.
Haering, D W & Co, P O Box 6037, Harlandale Sta, San Antonio, Texas
Hall Laboratories Inc, Hagan Bldg, Pittsburgh 30, Pa.
Heilman Boiler Wks, 132 Linden St, Allentown, Pa.
Illinois Water Treatment Co, 883-5 Cedar St, Rockford, Ill.
Inertol Co Inc, 480 Frelinghuysen Ave, Newark 5, N. J.
Infilco Inc, 2750 S 12th Ave, Tucson, Ariz.
Kelite Products Inc, Box 2917 Terminal Annex, Los Angeles 54, Calif.
Lapp Insulator Co, Inc, 150 Maple St, Le Roy, N. Y.
Layne & Bowler Inc, Box 6815, Hollywood Sta, Memphis 8, Tenn.
Madden, P E & Co, 352 W Walton St, Chicago 10, Ill.
National Aluminate Corp, 6246 W 66th Place, Chicago 38, Ill.
Pennsylvania Salt Mfg Co, 1000 Widener Bldg, Phila, Pa.
Permutit Co, 330 W 42nd St, New York 18, N. Y.
Perolin Co Inc, 10 E 40th St, New York 16, N. Y.
Polyphase Chem Service Inc, 150 Nassau St, New York 38, N. Y.
Portland Shingle Co, Chemical Div, 9038 N Denver Ave, Portland 17, Ore.
Proportioneers Inc, 345 Harris Ave, Providence 1, R. I.
Refinite Corp, Box 1312, Omaha, Neb.
Rohm & Haas Co, Resinous Products Div, 222 W Washington Sq, Philadelphia 6, Pa.
Standard Chemicals Inc, 36 Summer St, Natick, Mass.
Wallace & Tiernan, 1 Main St, Belleville 9, N. J.
Water Treatment Co of America, 1159 Hodgkiss St, Pittsburgh, Pa.

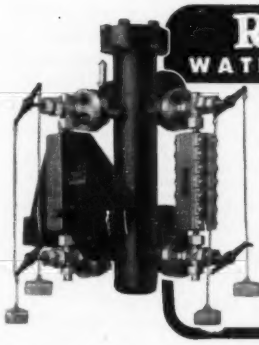
ELGIN WATER CONDITIONING

SINCE 1908

WATER SOFTENERS-ZEOLITE (Double Check design gives up to 44% more soft water. All types of zeolite.)
DEIONIZERS (give equivalent of distilled water.)
DEALKALIZERS (give hardness-free water of controlled alkalinity and reduced solids content.)
NEUTRALIZERS (counteract corrosive water.)
WATER FILTERS (types for every purpose.)
FEEDWATER TREATMENT (individually formulated.)
WATER TREATING CHEMICALS (for every need.)

Write for Bulletins

ELGIN SOFTENER CORPORATION
130 North Grove Avenue — Elgin, Illinois



Reliance WATER COLUMNS

● For all working steam pressures. With alarms, to 900 psi; without alarms, to 2000 psi. Latest approved construction technique — rugged strength with generous margin of safety.

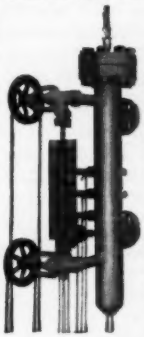
Complete water column trim—see advertisement under Gages: Liquid Level. When writing, state working pressure of your boilers.

Reliance Gauge Column Co.
5902 Carnegie Ave. • Cleveland 3, Ohio

YARWAY WATER COLUMNS & GAGES

Widely used by public utilities, industrial plants and institutions. Sold as complete units or separate columns and gages.

Floatless Hi-Lo Alarm in column depends for action on displacement of balanced solid weights. Whenever high or low water level destroys balance of weights, valve in top of column opens, admitting steam to alarm whistle. Hi-Lo Alarm Columns made for all pressures up to 1500 lbs., no-alarm columns for pressures to 2500 lbs.



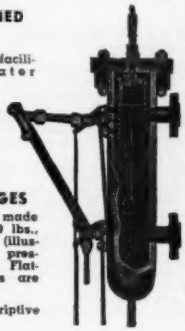
SESURE-INCLINED GAGE

(shown at right) facilitates reading water level from any point on boiler room floor, even directly beneath. Made with round glass for pressures up to 400 lbs.

VERTICAL GAGES

with round glass made for pressure to 400 lbs., with flat glass (illustrated at left) for pressures to 2500 lbs. Flat-glass steel inserts are mica protected.

Send for descriptive Bulletin WG-1811.



YARWAY REMOTE LIQUID LEVEL INDICATORS

Yarway's Remote Liquid Level Indicator brings overhead gage readings right down to eye level, on the instrument panel or other convenient place. It gives instant, accurate boiler water level indication on a brilliantly lighted red and green dial.

The Yarway Remote Liquid Level Indicator is accurate because IT'S OPERATED BY THE BOILER WATER ITSELF —by the pressure differential between a constant head of water and the varying head in the boiler drum . . . a unique indicating mechanism which is never under pressure. Action is instant, constant, frictionless. THERE ARE NO STUFFING BOXES. Suitable for all pressures up to 2500 psi.

Moderately priced and easily installed on new or existing equipment. Thousands already in use, not only to indicate boiler and feed heater water levels, but also other liquid levels and superheater pressure differential.

For complete description, write for Bulletin WG-1823.

For description of Yarway HI-LO-GRAPH Liquid Level Recorder, write for Bulletin WG-1830

See other Yarway Advertisements on pages 84, 89, 118, 123, 131

YARNALL-WARING COMPANY
100 MERMAID AVE., PHILA. 18, PA.

Western Chemical Co. 713-15 Washington St. Kansas City 5. Mo.
Worthington Pump & Machinery Corp. Harrison. N. J.
Wright Chemical Corp. 617 W Lake St. Chicago 6. Ill.
Xzit Chemical Co. 158-14th St. Hoboken. N. J.

WELDING AND CUTTING OUTFITS, OXYACETYLENE

Air Reduction Sales Co. 60 E 42nd St. New York 17. N. Y.
Dockson Corp. 3839 Wabash Ave. Detroit 8. Mich.
Eutectic Welding Alloys Corp. 40-40 172nd St. Flushing. N. Y.
Imperial Brass Mfg Co. 1200 W Harrison St. Chicago 7. Ill.
Linde Air Products Co. 30 E 42nd St. New York 17. N. Y.
Marquette Mfg Co. 307 E Hennepin Ave. Minneapolis 14. Minn.

WELDING MACHINES, ELECTRIC

Air Reduction Sales Co. 60 E 42nd St. New York 17. N. Y.
Eisler Engrg Co Inc. 757 S 13th St. Newark 3. N. J.
Eutectic Welding Alloys Corp. 40-40 172nd St. Flushing. N. Y.
General Electric Co. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Harnischfeger Corp. 4400 W National Ave. Milwaukee 14. Wis.
Hobart Brothers Co. Hobart Square. Troy 1. Ohio
Lincoln Elec Co. 22801 St. Clair Ave. Cleveland 17. Ohio
Linde Air Products Co. 30 E 42nd St. New York 17. N. Y.
Marquette Mfg Co. 307 E Hennepin Ave. Minneapolis 14. Minn.
Metal & Thermal Corp. 100 E 42nd St. New York 18. N. Y.
Smith. A O. Corp. 3533 N 27th St. Milwaukee 1. Wis.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

WHEELS, SPROCKET

American Manganese Steel Div. Chicago Heights. Ill.
Atlantic Gear Works. 200 Lafayette St. New York 12. N. Y.
Babbitt Steam Specialty Co. 55 S Water St. New Bedford. Mass.
Bartlett. C O & Snow Co. 6200 Harvard Ave. Cleveland 5. Ohio
Boston Gear Wks. 14 Hayward St. Quincy 71. Mass.
Chain Belt Co. 1674 W Bruce St. Milwaukee 4. Wis.
Continental Gin Co. 4500 S 5th Ave. Birmingham 2. Ala.
Diamond Chain Co. Inc. Dept 444. 402 Kentucky Ave. Indianapolis 7. Ind.
Filer & Stowell Co. 147 E Becher St. Milwaukee 7. Wis.
Gifford-Wood Co. Hudson. N. Y.
Jeffrey Mfg Co. 932 N Fourth St. Columbus 16. Ohio
Holmes. Robert. & Bros. Danville. Ill.
Link-Belt Co. 220 S Belmont Ave. Indianapolis 6. Ind.
McNally Pittsburg Mfg Corp. Pittsburg. Kansas
Medart Co. 100 Potomac St. St Louis 18. Mo.
Philadelphia Gear Wks Inc. G St & Erie Ave. Philadelphia 34. Pa.
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.
Union Chain & Mfg Co. Edgewater Ave. Sandusky. Ohio

WINCHES, ELECTRIC, HAND

American Hoist & Derrick Co. 63 S Robert St. St Paul 1. Minn.
Bartlett. C O & Snow Co. 6200 Harvard Ave. Cleveland 5. Ohio
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Hewitt-Robins Inc. 370 Lexington Ave. New York 17. N. Y.
Jeffrey Mfg Co. 932 N Fourth St. Columbus 16. Ohio
Link-Belt Co. 2410 W 18th St. Chicago 8. Ill.
Robbins & Myers Inc. 1345 Lagonda Ave. Springfield. Ohio
Shaw-Box Div. Manning. Maxwell & Moore Inc. Muskegon. Mich.
Shepard Niles Crane & Hoist Corp. Schuyler Ave. Montour Falls. N. Y.
Silent Hoist & Crane Co. 841 63rd St. Brooklyn 20. N. Y.
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.
Wheeler. C H. Mfg Co. Lehigh & Sedgley Aves. Philadelphia 32. Pa.
Yale & Towne Mfg Co. Roosevelt Blvd. Philadelphia 15. Pa.

WIRE AND CABLE, ELECTRIC, 600 V AND UNDER

Aluminum Co of America. Dept 11. 670 Gulf Bldg. Pittsburgh 19. Pa.
American Steel & Wire Co. Rockefeller Bldg. Cleveland 13. Ohio
Anaconda Wire & Cable Co. 25 Broadway. New York 4. N. Y.
Federal Telephone & Radio Corp. 100 Kingsland Rd. Clifton. N. J.
General Cable Corp. 420 Lexington Ave. New York 17. N. Y.
General Electric Co. Construction Materials Dept. 1285 Boston Ave. Bridgeport 2. Conn.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
National Electric Products Corp. Chamber of Commerce Bldg. Pittsburgh. Pa.
Okonite Co. Canal St. Passaic. N. J.
Rockbestos Products Corp. 385 Nicoll St. New Haven 4. Conn.
Roebling's. John A Sons Co. Trenton 2. N. J.
Simplex Wire & Cable Co. 79 Sidney St. Cambridge 39. Mass.
Tennessee Coal Iron & R R Co. U S Steel Sub. Brown Marx Bldg. Birmingham. Ala.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.

WIRE AND CABLE, ELECTRIC, OVER 600 V

Aluminum Co of America. Dept 11. 670 Gulf Bldg. Pittsburgh 19. Pa.
American Steel & Wire Co. Rockefeller Bldg. Cleveland 13. Ohio
Anaconda Wire & Cable Co. 25 Broadway. New York 4. N. Y.
Chase Brass & Copper Co. 236 Grand St. Waterbury 20. Conn.
Federal Telephone & Radio Corp. 100 Kingsland Rd. Clifton. N. J.
General Cable Corp. 420 Lexington Ave. New York 17. N. Y.
General Electric Co. Construction Materials Dept. 1285 Boston Ave. Bridgeport 2. Conn.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
National Electric Products Corp. Chamber of Commerce Bldg. Pittsburgh. Pa.
Okonite Co. Canal St. Passaic. N. J.
Rockbestos Products Corp. 285 Nicoll St. New Haven 4. Conn.
Roebling's. John A Sons Co. Trenton 2. N. J.
Tennessee Coal Iron & R R Co. U S Steel Sub. Brown Marx Bldg. Birmingham. Ala.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.

ZEOLITES

(See Softeners. Water)

POWER SERVICE GUIDE

DEALERS, EQUIPMENT

(See Searchlight Section of This Issue)

INSURANCE, BOILER AND POWER EQUIPMENT

Columbia Casualty Co. 1 Park Ave. New York 16. N. Y.
Hartford Steam Boiler Inspection & Insurance Co. 56 Prospect St. Hartford 2. Conn.
Mutual Boiler & Machy Insurance Co. 60 Batterymarch St. Boston 10. Mass.
Ocean Accident & Guarantee Corp Ltd. 1 Park Ave. New York 16. N. Y.

MAGNETIC INSPECTION DEVICES

Associated Research Inc. 3758 W Belmont Ave. Chicago 18. Ill.
duMont Corp. 39 Beacon St. Greenfield. Mass.
Erie Mfg Co. 420 Commerce Bldg. Erie. Pa.
General Electric Co. Schenectady 5. N. Y.
Magnaflux Corp. 5900 Northwest Highway. Chicago 31. Ill.

REPAIR WORK, BOILER

Bigelow Co. Lloyd & River Sts. New Haven 13. Conn.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor. Del.
Green. A P. Fire Brick Co. Mexico. Mo.
Heilman Boiler Wks. 132 Linden St. Allentown. Pa.
Koven. L O & Brother Inc. 154 Ogden Ave. Jersey City 7. N. J.
Nooter Corp. 1400 S 2nd St. St Louis 4. Mo.
Reintjes. Geo P. Co. 2517 Jefferson St. Kansas City. Mo.
Sexauer. J A. Mfg Co. 2503 3rd Ave. New York 51. N. Y.
Voss Machine Wks. 242 E 122nd St. New York. N. Y.
Waite Construction Co. 111 Westminster St. Providence 3. R. I.

REPAIR WORK, CASTINGS

Canton Stoker Corp. 741 Andrews Pl. S W. Canton 1. Ohio
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Filer & Stowell Co. 147 E Becher St. Milwaukee 7. Wis.
Metalock Repair Service Inc. 36-19 48 Ave. L. I. City. N. Y.
Mercon Regulator Co. 2357 N 29th St. Milwaukee 10. Wis.
Murray. D J. Mfg Co. 1024 Third St. Wausau. Wis.
Voss Machine Wks. 24 E 122nd St. New York. N. Y.

REPAIR WORK, CHIMNEYS

American Chimney Corp. 147 4th Ave. New York 3. N. Y.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Custodis. Alphons. Chimney Const Co. 25 Broadway. N. Y. 4. N. Y.
Gunite Concrete & Construction Co. 1301 Woodswether Rd. Kansas City 6. Mo.
Kellogg. M W. Co. 225 Broadway. New York 7. N. Y.

REPAIR WORK, CONDENSER

Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Heat Exchange Engrg Inc. 512 Madison Ave. Hoboken. N. J.
Heilman Boiler Wks. 132 Linden St. Allentown. Pa.
Nooter Corp. 1400 S 2nd St. St Louis 4. Mo.
Voss Machine Wks. 242 E 122nd St. New York. N. Y.
Westinghouse Elec Corp. Sturtevant Div. Hyde Park. Boston 36. Mass.

REPAIR WORK, ENGINE

Baldwin - Lima - Hamilton Corp. Paschall P O. Philadelphia 42. Pa.
Condenser Service & Engrg Co. Inc. 89 River St. Hoboken. N. J.
Filer & Stowell Co. 147 E Becher St. Milwaukee 7. Wis.
Murray Iron Works. 1106 Washington St. Burlington. Iowa
Nordberg Mfg Co. 3073 S Chase Ave. Milwaukee 7. Wis.
Voss Machine Wks. 242 E 122nd St. New York. N. Y.

SCHOOLS, POWER CORRESPONDENCE

Hays School of Combustion. 430 N Michigan Ave. Chicago. Ill.
International Correspondence Schools. Scranton 9. Pa.

SERVICES, CONTRACTING, CONSTRUCTING

Austin Co. 16112 Euclid Ave. Cleveland 12. Ohio
Dravo Corp. Dravo Bldg. Pittsburgh 22. Pa.
Ebasco Co. 2 Rector St. New York. N. Y.
Fluor Corp Ltd. 2500 S Atlantic Blvd. Los Angeles 22. Calif.
Gunite Concrete & Construction Co. 1301 Woodswether Rd. Kansas City 6. Mo.
Jackson & Moreland. Park Square Bldg. Boston 10. Mass.
Kulijian Corp. 1200 N Broad St. Philadelphia 21. Pa.
Lientz. B P. Mfg Co. 210 W 8th St. Kansas City. Mo.
McGraw. F H. & Co. 51 E 42nd St. New York 17. N. Y.
Main. C T. Inc. 80 Federal St. Boston. Mass.
Pioneer Service & Engrg Co. 231 S LaSalle St. Chicago 4. Ill.
Pritchard. J F & Co. 908 Grand Ave. Kansas City 6. Mo.
Sanderson & Porter. 52 Williams St. New York. N. Y.
Stone & Webster Engrg Co. 49 Federal St. Boston. Mass.
Turner & Haws Engrg Co. 87 Gardner St. Boston 32. Mass.
Turner Construction Co. 420 Lexington Bldg. New York 7. N. Y.
Waite Construction Co. 111 Westminster St. Providence 3. R. I.
White. J G. Engrg Corp. 80 Broad St. New York 4. N. Y.
Wilson. H M Co. 18th & Brandywine Sts. Phila. 30. Pa.

USED EQUIPMENT

(See Searchlight Section of this issue)

GraybaR
has everything for WIRING
Graybar has all the proper materials and tools for any wiring job -- plus conduit and the necessary fittings and connectors.
For all your other electrical requirements as well, call us. Thousands of electrical items are distributed by Graybar through its network of strategically located warehouses. Graybar Specialists in each electrical field are on call to help solve unusual problems.
GraybaR Everything Electrical GraybaR ELECTRIC COMPANY
Wiring supplies are just a few items of the more than 100,000 electrical products distributed by Graybar nationally.
IN OVER 100 PRINCIPAL CITIES

Index to Former Manufacturers

An alphabetical list of companies taken over, absorbed, or merged— for the convenience of buyers seeking to buy new units or replacement parts

● To help you locate replacement parts for equipment that is no longer made by the original manufacturer, POWER has prepared this index. It is a listing of power-equipment companies which have been purchased or absorbed by other companies.

HOW TO USE: Look for the company name, shown on the nameplate of your equipment, in this alphabetical index. Directly following this listing is the name and address of the company now manufacturing this equipment. For example: If the nameplate on your pump says Alberger Pump Co., look under "Name of Company Absorbed" for Alberger Pump Co. Then, under the name Alberger Pump Co., you will find that the Foster Wheeler Corp. in New York now owns this company, that the pump is no longer made, but that replacements and parts are still available.

NAME OF COMPANY ABSORBED	Product	Still Mfg'd	Replacements Available
Advance Pump and Compressor Co –American-Marsh Pumps, Inc. 99 Campito Avenue, NE, Battle Creek Mich.	Pumps	No	Yes
Aero Pulverizer Co –Foster Wheeler Corp, 165 Broadway, New York, N. Y.	Pulverizers	No	Yes
Airex Co –Manning, Maxwell & Moore, Inc, 11 Elias St, Bridgeport 2, Conn.	Valves	Yes	Yes
Alberger Pump Co –Foster Wheeler Corp, 165 Broadway, New York, N. Y.	Heaters & Pumps	No	Yes
American Automatic Ice Machine Co –McQuay Inc, 1600 Broadway St, NE Minneapolis 13, Minn.	Ice Machines	Yes	Yes
American Ball Engine Co –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Steam Engines	Yes	Yes
***American Blower Co** –Troy Engine & Machine Co, Troy, Pa.	American Blower's Type "A" and "E" Vertical Steam Engines	No	Yes
American Brown Boveri –Allis-Chalmers Mfg Co, 1126 S 70th St, Milwaukee 1, Wisc.	Turbo-Blowers Transformers	Yes	Yes
American Filter Co –Oshkosh Filter & Softener Co, 1 Ceape Street, Oshkosh, Wis.	Filters	No	Yes
The Am. High Speed Chain Co –The Union Chain & Mfg Co, Sandusky, Ohio	Roller Chain	Yes	Yes
American Liquid Meter Co –Bowser, Inc, 1302 E Creighton Ave, Fort Wayne 5, Ind.	Liquid Meters	No	Yes
American Relay & Controls, Inc –Ohmite Mfg Co, 4835 W Flournoy St, Chicago 44, Ill.	Relays & Solenoids	Yes	Yes
American Schaeffor & Budenberg Corp –Manning Maxwell & Moore, Inc, 11 Elias St, Bridgeport 2, Conn.	Insts, Gages, Safety Valves	Yes	No
American Steam Gauge & Valve Mfg Co –Manning, Maxwell & Moore, Inc, 11 Elias St, Bridgeport 2, Conn.	Pressure Gages, Valves	No	No
American Stoker Co –Combustion Engrg-Superheater, Inc, 200 Madison Ave., New York, N. Y.	Stokers	No	Yes
***American Thermometer Co, Div** –H-B Instrument Company, Inc, 2633 Trenton Ave, Philadelphia 25, Pa.	Thermometers	Yes	Yes
***Ames Iron Works** –Skinner Engine Co. 337 W. 2th St, Erie, Pa.	Repair parts for Steam Engines only	Yes	Yes
Ashton Valve Co –Crosby Steam Gage & Valve Co, 10 Roland St, Boston 29, Mass.	Gages, Valves	Yes	Yes
Athol Pump Co –Leavitt Machine Co, 10 E River St, Orange, Mass.	Pumps	No	No
Atlas Imperial Engine Co –National Supply Co. Superior Engine Div., Springfield, 99, Ohio	Diesels	Yes	Yes
Aurora Pump & Mfg Co –Aurora Pump Co, Aurora, Ill.	Pumps	Yes	Yes
Badenhausen Corp –Riley Stoker Corp, 9 Neponset St., Worcester, Mass.	Boilers	Yes	Yes
Bagley & Sewall Co –O'Brien Steam Specialty Co, Inc, 312 Heffernan Bldg, Syracuse 2, N.Y.	Traps	No	No
Baldwin-Duckworth Co –Baldwin Duckworth Div, Chain Belt Co, 1674 W Bruce St, Milwaukee, Wis.	Roller Chain, Flexible Couplings	Yes	Yes
Ball Engine Co –Wilson-Snyder Mfg Div, Oil Well Supply Co, Braddock, Pa.	Steam Engines	No	Yes
Barr Constructors –Boiler Equipment Trust Co, Amherst, Mass.	Soot Blowers	Yes	Yes
Bartlett-Hayward Co –Bartlett-Hayward Div, Koppers Co, Inc, Koppers Bldg, Pittsburgh 19, Pa.	Precipators Couplings Gas Equipment	Yes	Yes
Belfield Valve Co –Industrial Div, Minneapolis-Honeywell Regulator Co, 1901 Windrim Ave, Philadelphia, Pa.	Valves	Yes	Yes
Bell Tool Company –Hill Pump Valve Co, 2728 Elston Ave, Chicago 47, Ill.	Flexible Shafts	Yes	Yes
Bignall & Kesler Machine Works –John Ramming Machine Co, 4591 McRee Ave, St. Louis 10, Mo.	Pipe Threading Machines	Yes	Yes
Bilanx Corp –International Combustion Corp, 436 Pearl St, New York, N. Y.	Steam Separators	Yes	Yes

*This company is still manufacturing under its own name, the company, directly following, has purchased the rights to only the one product listed in the second column, but not to the entire company.

NAME OF COMPANY ABSORBED	Product	Still Mfg'd	Replacements Available
Blackburn-Smith Mfg Co, Inc –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Filters, Strainers	Yes	Yes
Blake Mfg Co –Hoffman Specialty Co, 1001 York St, Indianapolis 7, Ind.	Plumbing Specialties	Yes	Yes
The Borden Co –Beaver Pipe Tools Inc, 310 Dana St, NE, Warren, Ohio	Threading Tools	Yes	Yes
***Bowser, Inc** –Manzel Brothers Co, Inc, 315 Babcock St, Buffalo 10, N. Y.	Lubricators	No	Yes
Box Crane & Hoist Corp –Shaw-Box Div, Manning Maxwell & Moore Inc, Muskegon, Mich.	Cranes and Hoists	Yes	Yes
The Brown Engineering Co –The Brady Conveyor Corp, 24 W Jackson Blvd, Chicago 4, Ill.	Ash Conveyors	Yes	Yes
Brown Instrument Co –Industrial Div., Minneapolis-Honeywell Regulator Co., 4485 Wayne Ave., Philadelphia, Pa.	Industrial Insts.	Yes	Yes
Buckeye Laboratories –Bowser, Inc, 1302 E Creighton Ave, Fort Wayne 5, Ind.	Oil Reclaiming Equipment	Yes	Yes
Busch-Sulzer Bros. Diesel Engine Co –Nordberg Manufacturing Co, 3073 S Chase Ave, Milwaukee, Wisc.	Diesel Engines	Yes	Yes
By-Products Steel Corp –Lukens Steel Co, Coatesville, Pa.	Steel Plate Shapes	Yes	Yes
Cal-Fin Corp –Tilco-Fin Div, D. E. Kennedy, Inc, 58 Second Avenue Brooklyn 15, N. Y.	Fin Tubing	Yes	Yes
California Tank Co –Santa Fe Tank & Tower Co, 5401 Hoyle Ave, Los Angeles, Calif.	Wood Tanks	Yes	Yes
A. S. Cameron Steam Pump Co –Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.	Pumps	Yes	Yes
Canton Gate Corporation –Canton Stoker Corp, 741 Andrews Place S W, Canton, Ohio	Grates	Yes	Yes
Capacitron Co –Jefferson Electric Co, Bellwood, Ill.	Condensers	Yes	Yes
Carbondale Machine Co –Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, N. J.	Air Conditioning & Refrigeration Equipment	Yes	Yes
Carpenter Eng & Equip Co –Laclede Stoker Co, 4438 Hunt Ave, St. Louis 10, Mo.	Stokers	Yes	Yes
Casey Hedges Boiler Co –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Boilers	No	Yes
Centrifugal Mechanical Equip Co –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Centrifuges	Yes	Yes
Chapman-Stein Company –Surface Combustion Corp, Grover & Sherman Sts, Toledo, Ohio	Furnaces	Yes	Yes
Chicago Fuse Co –Jefferson Electric Co, Bellwood, Ill.	Fuses	Yes	Yes
***Cleve. Pneu. Tool Co, Pneu. Div.** –Cleco Div, Reed Roller Bit Co, 2119 Reed St, Houston, Texas	Pneumatic Tools	Yes	Yes
***Cleveland Tool Co** –Centaur Div LeRoi Co, 1706 S 68th St, Milwaukee 14, Wis.	Air Tools	Yes	Yes
***Climax Engineering Co** –Controls Div, Climax Controls Div, Black Sivalls & Bryson, Inc, Tulsa, Okla.	Controls	Yes	Yes
***Cochrane Corporation** –The Hays Corporation, Michigan City, Ind.	Flow Meters	Yes	Yes
***Cochrane Corp. Instrument Div.** –Pennsylvania Industrial Instrument Co, 3116 N 17th St, Philadelphia, Pa.	Meters, Instruments	Yes	Yes
Coffin Valve Co –The Chapman Valve Mfg Co, 203 Hampshire St, Indian Orchard, Mass.	Sluice Gates	Yes	Yes
Columbian Iron Works –Mueller Co, 512 W Cerro Gordo St, Decatur 70, Ill.	Water Controlling Equipment	Yes	Yes
Commonwealth Electric Corp. Ltd. –Reliance Electric & Engrg Co, (Canada, Ltd.) Welland, Ontario, Canada	Motors, Generators Transformers, Mg sets	Yes	Yes
Condit Co –Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee 1, Wis.	Circuit Breakers	Yes	Yes
D. Connelly Boiler Co –Foster Wheeler Corp, 165 Broadway, New York, N. Y.	Boilers	No	Yes
Connelly Iron Sponge & Governor Co –Norwalk Valve Co, 33 Railroad Ave, South Norwalk, Conn.	Regulators, Gages, Check Valves	Yes	Yes
Coxe Traveling Grate Co –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Stokers	Yes	Yes
Cream City Foundry –Cutler-Hammer, Inc, 315 N 12th St, Milwaukee, Wisc.	Castings	Yes	Yes
Danville Iron & Steel Co –Kennedy Van Saun Mfg & Engrg Corp, 2 Park Ave, New York, N. Y.	Foundry Prods	Yes	Yes
***Danco Products, Inc** –Johnson Service Co, 507 S Michigan Ave, Chicago, Ill.	Air Compressors	Yes	Yes
G. M. Davis Regulator Co –Davis Regulator Co, 2540 S Washtenaw Ave, Chicago, Ill.	Regulators	Yes	Yes
Dayton-Dowd Company –Peerless Pump Div, Food Machinery Corp, 301 West Ave, 26 Los Angeles, Calif.	Horizontal Pumps	Yes	Yes
DeBothezat Impeller Co –American Machine & Metals, Inc, East Moline, Ill.	Fans & Blowers	Yes	Yes
DeLa Vergne Engine Co –Baldwin-Lima-Hamilton Co, Philadelphia 42, Pa.	Diesel Engines	Yes	Yes
Julian D'Este Div. Am. Chain & Cable Co –Kay & MacDonald, Inc, 94 Franklin Ave, West Orange, N. J.	Steam Specialties	Yes	Yes
Detroit Electric Furnace Co –Kuhlman Elec Co, 2700 Garfield Blvd, Bay City, Mich.	Elec. Furnaces	Yes	Yes
Dixie Machinery Mfg Co –Pennsylvania Crusher Co. 1707 Liberty Trust Bldg. Philadelphia 7, Pa.	Grinding Equipment	Yes	Yes
J. P. Devine Mfg Co –H. K. Porter Co. Pittsburgh, Pa.	Heat Exchangers	Yes	Yes
Dover Boiler Works –L. O. Koven & Bro, Inc, Ogden & Koven Aves, Jersey City 7, N. J.	Steel Fabrications	Yes	Yes
***Richard Dudgeon Co** –Wilson-Dudgeon Div, Thomas C, Wilson, Inc, 21-11 44th Ave, Long Island City 1, N. Y.	Tube Expanders	Yes	Yes
Dwight Mfg Co –F W Dwyer Mfg Co, 317 S Western Ave, Chicago, Ill.	CO_2 Indicators	No	No
Eddy Valve Co –James B. Clow & Sons, 201-299 N Talman Ave, Chicago 80, Ill.	Valves	Yes	Yes
Edgemoor Iron Works Division –Condenser Service and Engrg Co, Inc, 95 River St, Hoboken, N. J.	Boilers, Tanks	Yes	Yes
Electrical Instrument & Engrg Co –James G. Biddle Co, 1316 Arch St, Philadelphia, Pa.	Elec. Instruments	No	Yes
Electrimatic Valve Co –Jas Marsh Corp, Skokie, Ill.	Regulators, Valves	Yes	Yes

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NAME OF COMPANY ABSORBED	Product	Still Mfg'd	Replacements Available
Electro Chemical Engineering Corp –Dearborn Chemical Co, 310 S. Michigan Ave, Chicago 4, Ill.	Meters, Instruments	Yes	Yes
Engberg's Electric & Mechanical Works –Troy Engine & Machine Co, Troy, Pa.	Generators & Steam Engines	No	Yes
Enterprise Engine & Foundry Co –Enterprise Div, General Metals Corp, 18th & Florida Streets, San Francisco, Calif.	Diesels, Oil Burners	Yes	Yes
Epping-Carpenter Pump Co –Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, N. J.	Pumps	No	No
***Frederick Flader, Inc** –Clark Bros, Olean, N. Y.	Compressors	Yes	Yes
Floorsteel Co –Wm. F. Klemp Co, 6640 S Melvina Ave, Chicago, Ill.	Steel Floor Armor	Yes	Yes
Foos Gas Engine Co –Fulton Iron Works Co 1259 Delaware Ave, St Louis 14, Mo.	Gas & Gasoline Engines	No	Yes
***Frederick Engineering Co** –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Stokers	Yes	Yes
Fuerst-Friedman Co –Columbia Electric Mfg Co 4519 Hamilton Ave, Cleveland 14, O.	Motors, Generators	Yes	Yes
Fuller Lehigh Co –The Babcock & Wilcox Co, 85 Liberty St, New York, N. Y.	Pulverized Coal Equipment	Yes	Yes
Furnace Engineering Co –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Pulverizers	No	Yes
Gamon Meter Co –Worthington-Gamon Meter Co, Div, Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, New Jersey	Meters	Yes	Yes
Gehl Bros. Mfg Co –Eddy Stoker Corp, 4711 West North Ave, Chicago 39, Ill.	Stoker	Yes	Yes
Gardner Governor Co –Gardner-Denver Co, Quincy, Ill.	Pumps, Compressors	Yes	Yes
Gast Mfg Corp –Johnson Corp, 865 Wood St, Three Rivers, Mich.	Air Separators	Yes	Yes
***Gehl Bros. Mfg Co, Stoker Div** –Eddy Stoker Corp, 4711 West North Ave, Chicago 39, Illinois	Stokers	Yes	Yes
Gehnrich Oven Division –W. S. Rockwell Co, 200 Eliot St, Fairfield, Conn.	Industrial Ovens	Yes	Yes
General Air Filter Co –American Air Filter Co, Inc, First & Central Ave, Louisville 8, Ky.	Filters	No	No
General Machinery Co –Lima-Hamilton Works, Hamilton, Ohio	Diesels, Steam Engines	Yes	Yes
Gillis & Geoghegan Hoist Corp –Brady Conveyors Corp, 20 Jackson Blvd, Chicago 4, Ill.	Hoists	Yes	Yes
Gilman Mfg Co –Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, N. J.	Rock Drill Equip.	Yes	Yes
Girtanner Engrg Corp –National Conveyor Co, Inc, 54 Church St, New York 7, N. Y.	Conveyors	Yes	Yes
***Globe Mfg Co, Air Compressor Div** –Schramm, Inc, West Chester, Pa.	Air Compressors	Yes	Yes
Green Engineering Co –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Stokers	Yes	Yes
Grieve Grate Co –Combustion Engrg-Superheater, Inc 200 Madison Ave, New York, N. Y.	Grates	Yes	Yes
H-B Electric Co –H-B Instrument Co, Inc, 2633 Trenton Ave, Philadelphia 25, Pa.	Relays	Yes	Yes
George J. Hagan Co –Beaumont Birch Co, 1505 Race St, Philadelphia 2, Pa.	Steam Jet Ash-Conveyors	No	Yes
Hall Mfg Co –Waterbury Tool Div, Vickers, Inc, 188 East Aurora St, Waterbury 67, Conn.	Valve Refacers, Valve Seat Grinders	Yes	Yes
Hanlon Waters, Inc. –Climax Engineering Co, Box 1529 Tulsa 1, Okla.	Valves, Controls	Yes	Yes
Hare Stoker Corp –Hoffman Combustion Engrg Co, 710 Marquette Bldg, Detroit, Mich.	Stokers	No	Yes
Harrisburg Engine Co –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Steam Engines	Yes	Yes
Heggie-Simplex Boiler Co –Lookout Boiler & Mfg Co, Mfrs. Rd. & Compress St, Chattanooga, Tennessee	Heating Boilers	Yes	Yes
Heine Boiler Co –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Boilers	No	Yes
Hercules Float Works –Henry Owens & Co, Inc, 51 Washington Ave, Cranston 7, R. I.	Floats	Yes	Yes
Hextell Co –Wm. F. Klemp Co, 6640 S Melvina Ave, Chicago, Ill.	Heavy Duty Floor Covering	Yes	Yes
M. A. Hofft Co –The Hofft Co, Inc, Georgia & West Sts, Indianapolis, Ind.	Waste Fuel Furns.	Yes	Yes
Hohmann-Nelson Co –Manning, Maxwell & Moore, Inc, 11 Elias St, Bridgeport 2, Conn.	Controllers	No	No
Honeywell-Heating Specialties Co –Minneapolis-Honeywell Regulator Co, 2753 Fourth Ave, S, Minneapolis, Minnesota	Heating Controls	No	No
Wilbur G. Hudson Corp –National Conveyors Co, Inc, 54 Church St, New York 7, N. Y.	Conveyors	Yes	Yes
C. W. Hunt Co –Gifford-Wood Co, Hudson, N. Y.	Gates & Valves	Yes	Yes
Hurst Industries, Inc –Cardox Corp, 307 N Michigan Ave, Chicago, Ill.	Fire Fighting Equipment	Yes	Yes
***Hydraulic Turbine Div, Holyoke Machine Co** –S. Morgan Smith Co, 500 Lincoln St, York, Pa.	Hydraulic Turbines	Yes	Yes
Hynes Elec Heating Co –Hynes Elec Heating & Process Div, Martin-Quaid Co, 1815 W Sedgeley Ave, Philadelphia, Pa.	Elec. Heaters	Yes	Yes
Independent Air Filter Co –American Air Filter Co, Inc, First & Central Aves, Louisville 8, Ky.	Filters	No	Yes
Instant Water Heater Co –Johnson Corp, 865 Wood St, Three Rivers, Mich.	Water Heaters	Yes	Yes
Instrument Service Co –Condenser Service and Engrg Co, Inc, 95 River St, Hoboken, N. J.	Instruments and Repair Service	Yes	Yes
Iowa Valve Co –James B. Clow & Sons, 201-299 N Talman Ave, Chicago 80, Ill.	Valves	Yes	Yes
Jarecki Mfg Co –Jarecki Valve Div, H. K. Porter Co, Inc, 1150 North Peoria, Tulsa, Okla.	Valves	Yes	Yes
Kelly & Jones Co –Walworth Co, 60 E 42nd St, New York, N. Y.	Valves, Fittings	Yes	Yes
Kerr Turbine Company –Elliott Co, Jeannette, Pa.	Steam Turbine	Yes	Yes
Kimball-Krough Pump Co –Peerless Pump Div, Food Machinery Corp, 301 W Ave, 26 Los Angeles, California	Pumps	Yes	Yes
***King-Seeley Corp, Servo Governor Div.** –Pierce Governor Co, 1611 Ohio Ave, Anderson 7, Ind.	Governors	Yes	Yes
Kitson Company, Div –The Welsbach Corp, 1500 Walnut St, Philadelphia 2, Pa.	Valves	Yes	Yes

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NAME OF COMPANY ABSORBED	Product	Still Mfg'd	Replacements Available
L-R Mfg Co –Ripley Co, Inc, Factory St, Middletown, Conn.	Blowers	Yes	Yes
***Laclede Christy Clay Prods Co** –Laclede Stoker Co, 4438 Hunt Ave, St. Louis 10, Mo.	Stokers	Yes	Yes
Ladd Water Tube Boiler Co –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Boilers	No	Yes
La Del Conveyor & Mfg Co –Joy Mfg Co, Olive Bldg, Pittsburgh 22, Pa.	Fans, Blowers, Conveyors	Yes	Yes
The Lagonda Mfg Co –Lagonda Div, Elliott Co, Springfield, Ohio	Tube Cleaners	Yes	Yes
Lawrence Machine Co –Lawrence Machine & Pump Corp, 371 Market St, Lawrence, Mass.	Centrifugal Pumps	Yes	Yes
C. H. Leach Co –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Refinery Equipment	Yes	Yes
Lee Engineering Co –Condenser Service and Engrg Co, Inc, 95 River St, Hoboken, N. J.	Unit Heaters	Yes	Yes
H. Levine Cooperage Tank Dept –Santa Fe Tank & Tower Co, 5401 Boyle Ave, Los Angeles, Calif.	Tanks, Cooling Towers	Yes	Yes
Liberty Manufacturing Co –Elliott Company, Jeannette, Pa.	Tube Cleaners	Yes	Yes
Lima-Hilton Corp –Baldwin-Lima-Hamilton Co, Philadelphia 42, Pa.	Diesel & Steam Engines, grinding equipment & machine	Yes	Yes
Liquid Conditioning Corp –Cochrane Corp, 17th St, Allegheny Ave, Philadelphia 32, Pa.	Water-Treatment Equipment	Yes	Yes
Locomotive Pulverized Fuel Co –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Pulverized Fuel Equip.	Yes	Yes
Lorimer Engine Co –Atlas-Imperial Diesel Engine Co, 1000 19th Ave, Oakland 6, Cal.	Diesel Engines	Yes	Yes
Lubrication Devices –The Farval Corp, 3250 E 80th St, Cleveland 4, Ohio	Centralized Lubrication Systems	Yes	Yes
Lukenweld, Inc –Lukens Steel Co, Coatesville, Pa.	Welders	Yes	Yes
Magnetrol, Inc –Magnetrol Div, Fred H. Schaub Engrg Co, Inc, 2110 S Marshall Blvd, Chicago, Ill.	Liquid Level Controls	Yes	Yes
Mantle Engineering Co –Surface Combustion Corp, Grover & Sherman Sts, Toledo, Ohio	Heat Recuperators	No	Yes
Mark Manufacturing Co –Clayton Mark & Co, 1900 Dempster St, Evanston, Ill.	Unions	Yes	No
McCann Harrison Co –J. O. Ross Engrg Corp, 350 Madison Ave, New York 17, N. Y.	Unit Heaters	Yes	Yes
McIntyre Co –Eastern Industries, Inc, 296 Elm St., New Haven 6, Conn.	Hydraulic Pumps. Fluid Motors	Yes	Yes
Mercury Clutch Corp –Automatic Steel Products, Inc, Canton 6, Ohio	Auto. Clutches	Yes	Yes
Metalweld, Inc –Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, N. J.	Portable Compressors	Yes	Yes
Midwest Air Filters, Inc –American Air Filter Co, Inc, First & Central Ave, Louisville 8, Ky.	Filters	Yes	Yes
Mines Equipment Co –Joy Mfg Co, Oliver Bldg, Pittsburgh 22, Pa.	Electrical Distribution Systems	Yes	Yes
Minneapolis Heat Regulator Co –Minneapolis-Honeywell Regulator Co, 2753 Fourth Ave, S, Minneapolis, Minnesota	Htg. Controls	No	No
Moore Steam Turbine Corp –Worthington Pump & Machinery Corp, 744 Broad St, Newark 2, N. J.	Turbines, Turbine-Generators	Yes	Yes
I. P. Morris –Baldwin-Lima-Hamilton Co, Philadelphia 42, Pa.	Hydraulic Turbines	Yes	Yes
Levi Morris & Co –Baldwin-Lima-Hamilton Co, Philadelphia 42, Pa.	Hydraulic Turbines	Yes	Yes
Morrow Mfg Co –McNally Pittsburg Mfg Corp, Pittsburg, Kansas	Coal Preparation Equipment	Yes	Yes
Murphy Iron Works –Riley Stoker Corp, 9 Neponset St, Worcester, Mass.	Stokers	Yes	Yes
Nagle Brothers –Nagle Pumps, Chicago Heights, Ill.	Pumps	Yes	Yes
National Air Filter Co –American Air Filter Co, Inc, First & Central Ave, Louisville 8, Ky.	Filters	Yes	Yes
National Chipveyor Systems –National Conveyors Co, Inc, 54 Church St, New York 7, N. Y.	Conveyors	Yes	Yes
National Conveyor Company –National Conveyors Co, Inc, 54 Church St, New York 7, N. Y.	Conveyors	Yes	Yes
National Machine Wks –The E. H. Wachs Co, 1525 Dayton, Chicago, Ill.	Blast Gates, Valves	Yes	Yes
National Pipe & Foundry Co –Walworth Co, 60 E 42nd St, New York, N. Y.	Soil Pipe, Fittings	No	No
National Regulator Co –Minneapolis-Honeywell Regulator Co, 2753 Fourth Ave, S, Minneapolis, Minnesota	Pneumatic Controls	Yes	Yes
Neilan Co –Mason-Neilan Regulator Co, 1190 Adams St, Boston 24, Mass.	Automatic Control Equipment	No	No
Herman Nelson Div –American Air Filter Co, Inc, First & Central Aves, Louisville 8, Ky.	Unit Heaters	Yes	Yes
N. Y. Continental Jewel Filtration Co –American Water Softener Co, Lehigh Ave & Fourth St, Phil 33, Pa.	Filters	Yes	Yes
Nichol Products Corp –J. O. Ross Engrg Corp, 350 Madison Ave, New York 17, N. Y.	Unit Heaters	Yes	Yes
***Niles Crane Wks, Niles-Bement-Pond Co** –Shepard Niles Crane & Hoist Corp, 410 Schuyler Ave, Montour Falls, New York	Elec. Cranes	Yes	Yes
Niles Tool Works –Lima-Hamilton Works, Hamilton, Ohio	Diesels, Steam Engines	Yes	Yes
Northern Pump Co –Northern Ordnance, Inc, 48th & N. E. Marshall, Minneapolis, Minn.	Pumps	No	Yes
Northern Water Gauge Co –Swift Lubricator Co, Inc, 100 Burke St, Elmira, N. Y.	Gauges	Yes	Yes
The Ohio Blower Co –The Swartwout Co, Cleveland, Ohio	Traps, Ventilators, Exhaust Heads, Separators	Yes	Yes
***Packard Electric Co, Transformer Div** –Standard Transformer Co, Dana Avenue, Warren, Ohio	Transformers	No	Yes
Pomona Pump Co –Fairbanks Morse & Co, 600 S Michigan Ave, Chicago 5, Ill.	Pumps	Yes	Yes
Pan American Engineering Co –Simplex Oil Heating Corp, 11 Park Place, New York 7, N. Y.	Oil & Gas Burning Equipment	Yes	Yes
Stoker Div, Peerless Mfg Corp –Chicago Stoker Corp, 4711 W. North Ave, Chicago 39, Ill.	Stokers	Yes	Yes
Pelton Water Wheel Co –Baldwin-Lima-Hamilton Co, Philadelphia 42, Pa.	Water Wheels, Hydraulic Turbines	Yes	Yes
Pfeil Cooperage Works –Arrow Tank Co, Inc, 75 Leroy Ave, Buffalo 14, N. Y.	Wood Tanks	Yes	Yes
Pickering Governor Co –Champlain Co, Inc, Bloomfield, N. J.	Governors	Yes	Yes
Phillips Pump & Tank Co –Wayne Pump Co, Tecumseh St, Fort Wayne, Ind.	Lubricating Equip.	Yes	Yes

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NAME OF COMPANY ABSORBED	Product	Still Mfg'd	Replacements Available
Pittsburgh Seamless Tube Co –The Babcock & Wilcox Co, 85 Liberty St, New York, N. Y.	Tubes	Yes	Yes
Pittsburgh Transformer Co –Allis-Chalmers Mfg Co, 1126 S 70th St, Milwaukee 1, Wisconsin	Transformers	Yes	Yes
Platt Iron Works –Worthington Pump & Machinery Corp, 744 Broad St, Newark 2, N. J.	Feedwater Heaters, Water Wheels	No	No
Pottstown Metal Products –Cochrane Corp, 17th & Allegheney Ave, Philadelphia, Pa.	Steel Tanks	Yes	Yes
Pottsville Casting & Machine Shops, Inc –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Cast Iron Shapes	Yes	Yes
Power Specialty Co –Foster Wheeler Corp, 165 Broadway, New York, N. Y.	Superheaters	No	Yes
Pratt & Cady Co –The R-P & C Valve Div, American Chain & Cable Co, Inc, Reading, Pa.	Valves	Yes	Yes
Quimby Pump Co –Warren Steam Pump Co, 1234 Bridges Ave, Warren, Mass.	Pumps	Yes	Yes
Railway & Industrial Engrg Co –ITE Circuit Breaker Co, 19th & Hamilton Sts, Phil 30, Pa.	Power Switches	Yes	Yes
Ransome Machinery Co –Ransome Machinery Div, Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, N. J.	Industrial Mixers, Welding Positioners	Yes	Yes
Rateau-Battu-Smoot Co –Elliott Co, Jeannette, Pa.	Centrifugal Blowers	Yes	Yes
Raymond Bros Impact Pulverizer Co –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Pulversizers	Yes	Yes
Reading Steel Casting Co –The R-P & C Valve Div, American Chain & Cable Co, Inc, Reading, Pa.	Valves, Fittings	Yes	Yes
Reading Valve & Fitting Co –The R-P & C Valve Div, American Chain & Cable Co, Inc, Reading, Pa.	Valves, Fittings	Yes	Yes
Readrite Meter Works –J—B—T Instruments Inc, 461-B Chapel St, New Haven 8, Conn.	Meters	No	Yes
Reed Air Filter Co –American Air Filter Co, Inc, First & Central Ave, Louisville 8, Ky.	Filters	No	Yes
Richardson-Phenix Co –Bowser, Inc, 1302 E Creighton Ave, Fort Wayne 5, Ind.	Lubricating Equip.	Yes	Yes
Rider-Ericsson Engine Corp –Spence Engineering Co, Inc, Walden, N. Y.	Pumping Engines	No	No
Ridgway Dynamo & Engine Co –The Elliott Co, Jeannette, Pa.	Steam Engines, Blowers Motors, Generators,	No Yes	Yes Yes
Riehle Bros Testing Machine Co –American Machine & Metals, Inc, East Moline, Ill.	Testing Machinery	Yes	Yes
Ring Balance Instrument Co –Hagan Corp, 323 Fourth Ave, Pittsburgh, Pa.	Flow Meters	Yes	Yes
Robins Conveyors, Inc –Hewitt-Robins, Inc, 370 Lexington Ave, New York 17, N. Y.	Mt'l Handling Equip	Yes	Yes
Rockwell Engineering Co –W. S. Rockwell Co, 200 Eliot St, Fairfield, Conn.	Industrial Furnaces	Yes	Yes
P H & F M Roots Co –Roots-Connersville Blower Corp, 900 W Mount St, Connersville, Ind.	Blowers, Gas Pumps, Meters	Yes	Yes
***Ross Heater & Mfg Co** –Warren Webster & Co, 17th & Federal Sts, Camden, N. J.	Exp. Joints	Yes	Yes
Roth Bros –Century Electric Co, 1806 Pine St, St. Louis 3, Mo.	Motors, Generators, Generator Sets	Yes	Yes
The Roto Co –Roto Div, Elliott Co, Newark, N. J.	Tube Cleaners	Yes	Yes
R-S Products Corp –S. Morgan Smith Co, 500 Lincoln St, York, Pa.	Valves	Yes	Yes
Rust Boiler Co –The Babcock & Wilcox Co, 85 Liberty St, New York, N. Y.	Boilers	No	Yes
Safety Wrench & Appliance Co –Lowell Wrench Co, Worcester 8, Massachusetts	Wrenches, Car Movers	Yes	Yes
***Saval Inc, Industrial Valve Div** –Barksdale Valves, 4905 Santa Fe Ave, Los Angeles, Cal.	Valves	Yes	Yes
Sawyer Elec Mfg Co –A O Smith Corp, Pacific Coast Works, Motor Div, 5701 Smithway St, Los Angeles 22, Cal.	Motors, Grinders, Blowers	Yes No No	Yes No No
Jos. F. Schiller Valve Co –Schade Valve Mfg Co, 2529 N Bodine St, Philadelphia, Pa.	Valves	Yes	Yes
Schrader Power Pump Co –Wagner Steam Pump Co, Canton, Ohio	Pumps	Yes	Yes
A. Schrader's Sons –Scovill Mfg Co, 99 Mill St, Waterbury 91, Conn.	Indus. Air Equip	Yes	Yes
Scranton Pump Works –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Pumps	Yes	Yes
The "S-C" Regulator Mfg Co –The Swartwout Co, Cleveland, Ohio	Feedwater Regulators, Governors, Control Valves	Yes	Yes
Semler Co –Kennedy Valve Mfg Co, 1060 E Water St, Elmira, N. Y.	Pipe Fittings	Yes	Yes
The Shone Co –Yeomans Bros Co, 1433 N Dayton, Chicago 22, Illinois	Pneu, Sewage Ejectors	Yes	Yes
Simplex Ejector & Aerator Corp –Yeomans Bros Co, 1433 N Dayton, Chicago 22, Illinois	Sewage Equip	Yes	Yes
Smoot Engineering Corp –Republic Flow Meters Co, 2222 Diversey Parkway, Chicago, Ill.	Controls	Yes	Yes
Southwark Foundry & Machine Co –Baldwin-Lima-Hamilton Inc., Philadelphia 42, Pa.	Hydraulic Machinery	Yes	Yes
***Sprague Div General Electric Co** –Shepard Niles Crane & Hoist Corp, 410 Schuyler Ave, Montour Falls, New York	Elec. Hoists	Yes	Yes
Standard Steam Turbine Co –Murray Iron Wks Co, 1106 Wash. St, Burlington, Iowa	Steam Turbines	No	Yes
Staples Manufacturing Co –Staples & Pfeiffer, 528 Bryant St, San Francisco 7, Cal.	Strainers	Yes	Yes
Star Brass Mfg Co, Gauge Div –Williams & Hussey Machine Co, Wilton, New Hampshire	Gauges	Yes	Yes
Star Brass Mfg Co, Valve Div –Kunkle Valve Co, 119-121 S Clinton St, Fort Wayne 2, Ind.	Valves	Yes	Yes
Star Electric Motor Co –Star-Kimble Mfg Co, Div, Miehle Printing Press Co, 200 Bloomfield Ave, Bloomfield, N. J.	Motors	Yes	Yes
Staynew Filter Co –Dollinger Corp, 20 Centre Park, Rochester, N. Y.	Filters	Yes	Yes
Sterling Pump Company –Peerless Pump Div, Food Machinery Corp, 301 West Avenue, 26, Los Angeles, California	Pump & Water System	No	Yes

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NAME OF COMPANY ABSORBED	Product	Still Mfg'd	Replacements Available
Stirling Consolidated Boiler Co –The Babcock & Wilcox Co, 85 Liberty St, New York, N. Y.	Boilers	Yes	Yes
***B F Sturtevant Co, Cast Iron Economizer Div** –Green Fuel Economizer Co, Inc, 627 Main Street, Beacon, N. Y.	Economizers	Yes	Yes
Sullivan Machinery Co –Joy Mfg Co, Oliver Bldg, Pittsburgh 22, Pa.	Air Compressors	Yes	Yes
Sundh Electric Co –The Clark Controller Co, 1146 E 152nd St, Cleveland, Ohio	Elec. Controls	Yes	Yes
***Superior Eng Div, Nat'l Supply Co** –Sterling Engine Co, 1270 Niagara St, Buffalo 13, N. Y.	Models AB & DB Diesels	Yes	Yes
Swendeman, Inc –Leavitt Machine Co, 10 E River St, Orange, Mass.	Traps	Yes	Yes
Thermidaire Corp –E K Campbell Heating Co, 1809 Manchester Ave, Kansas City, Mo.	Heating Units	Yes	Yes
Thomas Machine Co –Shingle & Gibb Co, 5400 Grays Ave, Philadelphia, Pa.	Conveyors	Yes	Yes
Time-O-Stat Controls Co –Minneapolis-Honeywell Regulator Co, 2753 Fourth Ave, S, Minneapolis, Minnesota	Heating Controls	No	No
Titusville Forge Co –Titusville Iron Wks Div, Struthers-Wells Corp, Titusville, Pa.	Forgings	Yes	Yes
Titusville Iron Wks Co –Titusville Iron Wks Div, Struthers-Wells Corp, Titusville, Pa.	Boilers, Pumps, Tanks	Yes	Yes
Tolhurst Machine Works –American Machine & Metals, Inc, East Moline, Ill.	Centrifugal Extractors	Yes	Yes
***Torrington Manufacturing Co** –Manzel Brothers Co, 315 Babcock St, Buffalo 10, N. Y.	Lubricators	No	Yes
Traylor Vibrator Co –Jeffrey Mfg Co, 932-99 N Fourth St, Columbus 16, Ohio	Conveyors	Yes	Yes
Trumbull-Vanderpool Company –Cutler-Hammer, Inc, 315 N 12th St, Milwaukee, Wisc.	Safety Switches Control Panels	No	No
Underfeed Stoker Co of America –Riley Stoker Corp, 9 Neponset St, Worcester, Mass.	Stokers	Yes	Yes
Union Electric Mfg Co –Cutler-Hammer, Inc, 315 N 12th St, Milwaukee, Wisc.	Motor Controls	No	Yes
United Cinephone Corp –Ripley Co, Inc, Factory St, Middletown, Conn.	Electronic Controls	Yes	Yes
United Machinery and Mfg Co –Ripley Co, Inc, Factory St, Worcester, Mass.	Stokers	Yes	Yes
United States Gauge Co –American Machine & Metals, Inc, East Moline, Illinois	Gauges	Yes	Yes
The Unit Heater & Cooler Co –D. J. Murray Mfg Co, Wausau, Wisc.	Unit Heaters	Yes	Yes
The Vaile Kimes Co –McKays Co, 473 Cleveland Ave N, St Paul 4, Minn.	Water Pumps & Systems	Yes	Yes
Valentine Fire Brick Co –A. P. Green Fire Brick Co. Mexico, Mo.	Refractory Brick	Yes	Yes
Valve Maintenance Co –Boiler Equipment Trust, Main St, Amherst, Mass.	Valves	Yes	Yes
The Van Dorn Elec Tool Co –The Van Dorn Elec Tool Co Div, The Black & Decker Mfg Co, 600 E Pa. Ave, Towson 4, Md.	Portable Elec Tools	Yes	Yes
Voss Ice Machine Works –Voss Machine Wks, 242 E 122nd St, New York, N. Y.	Compressors	Yes	Yes
Walsh Weidner Boiler Co –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Boilers	No	Yes
Wappet, Inc –Mall Tool Co, 7728 South Chicago Ave, Chicago, Ill.	Elec Tools	Yes	Yes
Warnock Mfg Co –Lowell Wrench Co, Worcester 8, Mass.	Pipe Wrenches	Yes	Yes
Waterfilm Boilers, Inc –L O Koven & Brother, Inc, 154 Ogden Ave, Jersey City 7, N. J.	Low Pressure Heating Boilers, Hot Water Heaters	Yes	Yes
Weeks Merit System –Columbia Machine Co, 217 Conant St, Pawtucket, R. I.	Combustion Control Systems	Yes	Yes
Wescott Valve Co –Walworth Co, 60 E 42nd St, New York N. Y.	Steel Valves & Fittings	Yes	Yes
Wheeler Mfg Co, C. H., Div –Hamilton-Thomas Corp 1000 Weller Ave, Hamilton, Ohio	Condensers, Cooling towers, heat exchange equipment	Yes	Yes
Wheeler Condenser & Engrg Co –Foster Wheeler Corp, 165 Broadway, New York, N. Y.	Condensers	No	Yes
Whitcomb Locomotive Co –Baldwin-Lima-Hamilton Inc, Philadelphia 42, Pa.	Industrial Locomotives	Yes	Yes
D W Whitehead Mfg Corp –L O Koven & Brother Inc, 154 Ogden Ave, Jersey City 7, N. J.	Hot Water Heaters	Yes	Yes
***The Whitin Machine Works** –Troy Engine & Machine Co, Troy, Pa.	Steam Engines	Yes	Yes
D. E. Whiton Machine Co –The Whiton Machine Co, New London, Conn.	Steam Turbines	Yes	Yes
Wilbraham Green Blower Co –Roots-Connersville Blower Corp 900 W Mount St, Connersville, Ind.	Blowers, Gas Pumps, Meters	Yes	Yes
Winton Engine Co –Cleveland Diesel Engine Div, General Motors Corp, 2160 W 106th St, Cleveland 11, O.	Diesel Engines	Yes	Yes
Worth Steel Co –Colorado Fuel & Iron Corp, Denver, Colo.	Steel Pipe, tanks, plates	Yes	Yes
Yaxley Mfg Co –P. R. Mallory & Co, Inc, Mallory Bldg, Indianapolis, Ind.	Switches, Controls	Yes	Yes
Yeager Mfg Co –Homestead Valve Mfg Co, P O Box 210, Coraopolis, Pa.	Steam Cleaners	Yes	Yes
York Oil Burner Co –York Shipley, Inc, York, Pa.	Oil Burners	Yes	Yes
The Youngstown Steel Products Co –Clayton Mark & Co, 1900 Dempster St, Evanston, Ill.	Unions	Yes	No

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REVIEW OF NEW PLANT EQUIPMENT—1951

On this and the following pages, POWER presents its annual review of new plant equipment and supplies. These are selected from regular POWER issues July, 1950 through June, 1951; some are condensed for your convenience, and many are illustrated. For further details about any item, fill out and send in the cards from page 175.

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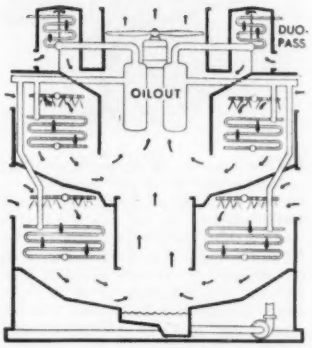


REFRIGERANT CONDENSERS P105

High-capacity units serve large refrigeration plants. Nominal rating is 300 tons. Recommended application is to plants above 400-ton capacity so operator may obtain economy that multiple-unit installation gives by varying condensing capacity with actual refrigeration load. Dimensions: length 14 ft, width 13 ft, height 18 ft; weight is about 20 tons, and largest section weighs about 4 tons.

Niagara Blower Co, 405 Lexington Ave, New York, N. Y.

COOLING TOWER P315

Compact cooling-tower unit, completely prefabricated, ready for rapid erection, featuring sturdy redwood or metal shell construction, is built in three distinctly different types: (1 horizontal flow (2) vertical flow (3) cylindrical-vertical flow.

Santa Fe Tank & Tower Co, 5401 S. Boyle Ave, Los Angeles 11, Calif.

AIR GRILLE P120

Combined grille, volume-control and deflecting vane makes possible a cut-down of duct take-offs to give an over-all reduction in air-conditioning distribution systems. Air-deflecting vanes produce uniform flow across the grille face. Volume-control adjuster makes it possible to balance a system readily.

Barber-Colman Co, Rockford, Ill.

HUMIDITY CONTROLLER P313

Plug-in humidity controller employs a humidistat of a standard human-hair type. Humidity scale is graduated from 20 to 100% relative humidity. Its dimensions are 7½ in. wide x 3¾ deep x 6¾ high. Its net weight is 3¼ lb. To put the plug-in controller to work, all that is needed is to: (1) plug the humidifier or dehumidifier to be controlled into the plug-in unit (2) plug the control unit into a wall outlet (3) set the humidity dial at the percentage of relative humidity desired.

Abbeon Supply Co, 58-10—41st Drive, Woodside, N. Y.

SPACE-HEATING MAT P229

Local warming of chilled or cold working areas can be accomplished with the *Dura-Thermal Mat*. It combines features of a wire coil door mat with a large area electric element. Hard steel wire coils are wound over a 28-watt 120-v metal-encased element distributed over a 16x27-in. mat area. The whole is enclosed in a heavy frame with protective rails of tubular burnished aluminum. Used as a floor mat, about 15% of the output is radiant heat and the remainder convective.

W B Snook Enterprises, 751 Loma Verde Ave, Palo Alto, Calif.

AIR CONDITIONER P305

Automatic water-regulating valve, built-in thermostat and limit control, bonderized cabinet of 16-gage steel are features of new 11-ton packaged air conditioner occupying 11.25 sq ft of floor space. Unit has a sealed radial compressor operating at 3500 rpm, a cooling capacity of 132,000 Btu, two dynamically-balanced fans, both suspended in self-aligning cushioned bearings.

Air-Temp Div, Chrysler Corp, Dayton, Ohio.

REFRIGERATION CONDENSERS P1229

Combined air- and water-cooled refrigeration condensers are designed to save water. When air temperature is less than about 85 F in Freon systems water is not used. Rise in air temperature above about 85 F causes head pressure to increase and open a valve in water line. Cooling water

then flows through inner tubes, condensing refrigerant. Water tubes are cleanable. Capacities of condensers range from 1/3 to 5 hp.
Heat-X-Changer Co, Inc, 250 E 43rd St, New York 17, N. Y.

VENTILATION FILTER P352
Stamped, heavy steel cell and frame with galvanized screen as a holding form make the new WKE-8, 24x24x8 in. deep, replaceable filter a rugged worker. Filtering medium may be either six or ten-ply feltex paper.
Dollinger Corp, 11 Centre Park, Rochester 3, N. Y.

UNIT HEATER P111
Compact 16x13x17-in. unit heater, for locomotive cabs, small buildings, storage sheds. Uses either steam or hot water and is ideal for waste heat from heated jacket water of gas, gasoline or diesel engines.
Young Radiator Co, Racine, Wis.

DUCT SIZING P1210
All factors you need to consider in selecting the right duct size can be picked off with *Ductulator*, a multiple-scaled circular slide rule. Knowing air volume and velocity the engineer can find friction loss per 100 ft of duct, diameter of round duct, dimensions of rectangular duct to carry needed quantity of air.
The Trane Co, La Crosse, Wis.

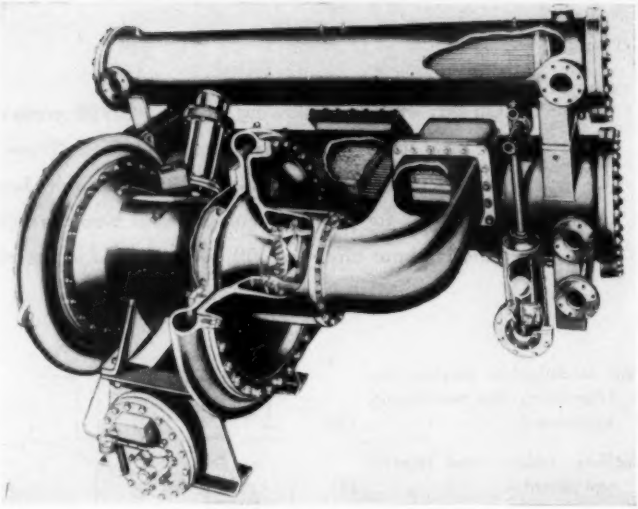
ROOM CONDITIONER P810
Under-window room air conditioners come in three basic sizes. Conditioner cools and dehumidifies summer air, has filters in the path of fresh or recirculated air. Fresh air may be supplied through pipes from a central blower in the basement or from a rear or bottom panel connecting directly to the outdoors through a window or the wall.
McQuay, Inc, Broadway and Johnson St, Minneapolis 13, Minn.

INDUSTRIAL DEHUMIDIFIER P228
Hermetically sealed ½-hp Freon condensing unit features commercial and industrial dehumidifier 50, which has a maximum 24-hr capacity of 50 lb of water removal from air. Unit will remove 1 gal of water from storerooms or other closed spaces in four to five hours under average temperature and relative humidity conditions.
Walter Haertel Co, 2840-4 Ave S, Minneapolis, Minn.

USE THE CARDS
on page 175
to order more information

COOLING TOWER P124
Atmospheric-spray cooling tower, *Type H*, for small packaged air-conditioning and refrigeration condensing units, is mass-produced in 10 frame sizes with capacities for refrigerating loads from 3 to 35 tons.
Binks Mfg Co, Water Cooling Div, 3114-40 Carroll Ave, Chicago 12, Ill.

Centrifugal Refrigerating Unit



P311 • Lower operating, maintenance and installation cost for a wide range of comfort and industrial air-conditioning systems seems indicated by the new *CenTraVac* centrifugal water-chilling unit. It employs the first hermetic centrifugal refrigeration unit designed for systems served by compressors with capacities of 45 or more tons of refrigeration. Refrigerant is F-113, a member of the Freon refrigerant family.

Maintenance economies seem to come from the use of the hermetic-seal design of the 2-stage compressor motor assembly. It eliminates shaft seals, a major source of gas and air leakage and compressor failures. Further savings should result from the direct drive, which eliminates gearboxes, sources of noise and friction. Impellers for both stages of compression mount directly on the constant-speed motor.

It will be manufactured initially in five sizes covering a general range of 40 to 52 F, leaving chilled-water temperatures, and 80 to 100 F, leaving condensing-water temperatures. Approximate capacity ranges go from 45 to 55, 65 to 95, 95 to 125, 115 to 155, and 140 to 190 tons.
Trane Co, La Crosse, Wis.

PORTABLE HEATER P223
Complete heating unit, including fuel tank, mounts on easy-operating truck. The heater is one of the line of Thermoblocs. Heaters are available from 300,000 Btu output to 100,000 and 200,000 Btu.
Thermobloc Div, Prat-Daniel Corp, East Portchester, Conn.

UNIT HEATER P1032
Drawer-type heat generator in new gas-fired unit heater burns either natural, manufactured, mixed or liquid petroleum gas. Heart of the heater is the Torrid Tube heat exchanger. Its steel tubes are rolled into heavy end sheets, boiler tube style, and fortified with additional outer and inner rolled flanges. Unit is produced in seven sizes with capacities from 50,000 to 210,000 Btu per hr input and 700 to 2700 cfm.
Trane Co, La Crosse, Wis.

AIR CLEANER P609
Complete air-cleaning package resembles a factory-fabricated section of air duct or plenum chamber, 96 in. long with a built-in Precipitron. Known as Type PE, packages are available in air-cleaning capacities ranging from 8330 cfm at 90% efficiency to 44,000 cfm at 85%. These efficiencies are measured by U. S. Bureau of Standards blackness test method.

Over-all cross-sectional dimensions range from 5 ft, 4 11/16 in. high 5 ft, 2½ in. wide, for the 8330 cfm unit to 10 ft, 4 11/16 in. high x 11 ft, 1¾ in. wide for the 44,000-cfm unit. All are 8 ft long. Approximate weight is from 1970 lb for the smallest unit to 48,000 for the largest.
Westinghouse Electric Corp, Box 1017, Pittsburgh 30, Pa.

FILTER CLEANER P520
Permanent-type filter elements used in air-conditioning systems can be cleaned at faster speed with less work by using the *Safe-N-Ezy* air-filter washer-oiler. One man working at normal speed can clean 600 or more 19½x19½x2⅛-in. air filters in an 8-hr day. Filters in an interior basket of a washer spin under centrifugal force

throughout a complete screening cycle where they are rinsed, spun dry and oiled all in one continuous operation.
Paxton-Mitchell Co, Omaha, Neb.

DIRECT-FIRED HEATER P515
High thermal efficiency under complete automatic control are features of new standard line of direct-fired heaters ranging in capacity from 100,000 to 15,000,000 Btu per hr. Equipment serves a wide range of applications, including both indirect circulating heating using a heat-transfer medium, such as *Dowtherm*, and direct heating of liquids and vapors in temperatures up to 750 F. A new bulletin, B-45, describing this equipment is available upon application to the manufacturer. The heater fires gas or oil.
Struthers-Wells Corp, Warren, Pa.

AIR FILTER P511
Impingement-strainer-type air filter uses a standard filter pad to which has been added a bonded industrial mat placed on the downstream side of the filter. The new product, I-S air filter, was under a rigorous 6-month field service test before being added to the company's line.
Glassfloss, 155 East 44th St, New York, N. Y.

GRILLE SELECTOR P822
Rapid sizing of ventilating and air-conditioning grilles can be made with the new grille selector supplied by the manufacturer at no cost. Table of maximum allowable noise levels for different installations is printed on ruled face.
Barber-Colman Co, Rockford, Ill.

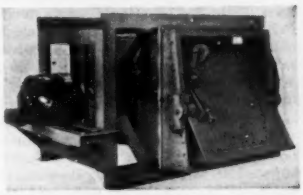
ROOF COOLER P603
Small vane-equipped waterwheel receives water from a special nozzle fitting aimed to spray a jet of water on the tip of the moving blades. These blades then throw a spray of water over the roof surface to remove the heat load from direct solar radiation. A ⅜- or ½-in. pipe from the nearest water line to the rotary roof cooler is all that is needed to supply water. The spinning wheel rotates the cooler on its support through enclosed gears, causing the spray to cover the entire roof surface gradually.

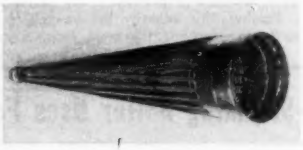
Result is a thin film of water permanently renewed on the roof. As the water film evaporates the spray replaces it.
Siegfried Ruppright, Box 6795, Los Angeles 22, Calif.

BOILERS, STOKERS, OIL & GAS BURNERS

Dust collectors, blowers, refractories and other equipment dealing with steam generation

PACKAGED BOILER P129
New, versatile addition to packaged steam-generator line can burn gas, light oil, heavy oil or a combination of gas and oil. In pressures from 15 to 200 psi, it comes fully equipped with integral burner, automatic safety and operating controls, valves and other equipment to make unit complete.
Cyclotherm Corp, Oswego, N.Y.



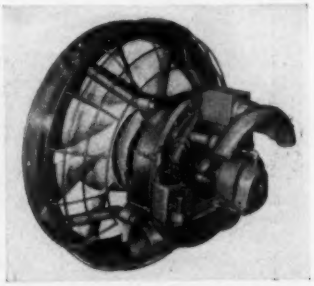


DUST COLLECTORS P113
Louvered, cone-shaped element forms the heart of series of dust collectors, *Types C, CC, SC*. Air or gas undergoing cleaning passes at high velocity over the louvered surface. Because of the slot form, aerodynamic forces are set up. Thus, dust particles are pushed away from the cone face and clean air leaves through slots. Dust goes on to outlet end of cone.
Aerodyne Development Corp, 879 Addison Rd, Cleveland 15, Ohio

DRAFT INDUCER P107
More precise control of furnace draft can be had by a variable-speed motor equipped with integral barometric dampers. Damper has a hinged explosion gate to relieve any excessive pressures developing in the breeching.
L J Wing Mfg Co, Linden, N. J.

DUST COLLECTOR P221
Portable, compact 20x30-in. floor space, standard unit available from stock, Model 8N50 dust collector has a self-clearing paddle-wheel fan direct driven by ¾-hp motor. It is capable of clearing lint, strings from buffing, chips, shaving and sawdust. Dust-laden air enters unit at 5-in. diameter inlet. Dust, dirt, etc, are taken out in cyclone separator and deposited in dust-storage compartment 9x20x-28 in., comprising the base of the unit.
Aget-Detroit Co, Ann Arbor, Mich.

HANDHOLE AND TUBECAP COVER GASKETS P331
Made of low-carbon plated steel, asbestos filler and type 304 stainless steel, these gaskets are available for practically all makes of boilers and auxiliary equipment operating at 0 to 1000 psi and above. No compounds needed, gaskets can frequently be reused if not removed from cover assemblies during outage. Style T gaskets available in two thicknesses: 0.125 in. for assemblies having narrow seating surfaces and high bonding loads; 0.175 in. for broad seating surfaces and low bonding loads.
Flexitallic Gasket Co, Eighth and Bailey Sts, Camden 5, N. J.



TURBINE BLOWER P121
All steel, streamlined turbine blower, for steam conditions up to 600 psig and 750 F, requires no water cooling of bearings. For oil-burner applications the blower can be bolted directly to the windbox without additional support. Unit carries capacities up to 70,000 cfm or static pressures up to 20 in. wg.
L J Wing Mfg Co, Linden, N. J.

DUST COLLECTOR P130
Tubular dust collector permits refiring high-carbon particles back into the fire without recirculating all the flyash. Separa-

tion of the high-carbon particles takes place within a single unit with one pass of the furnace gas. The method, known as *P-D Decantation*, employs two hoppers, one to collect high-carbon particles, the other to dispose of low-carbon particles.
Thermix Corp, Greenwich, Conn.

PACKAGED BOILER P523

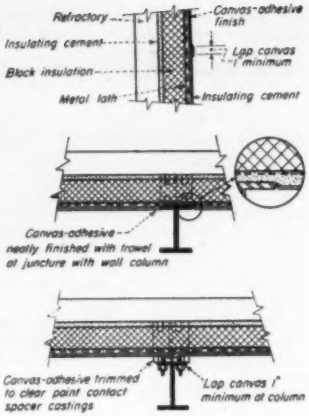
New combustion chamber design features 1951 line of manufacturer's *Steam-Pak* packaged steam generators firing gas, oil or a combination of gas and oil. Models range in capacities from 600 to 10,000 lb of steam per hr. Burner admits the combustion material and burning air in a swirling fashion so it moves through the combustion chamber under highly turbulent conditions. At the center a factory-adjusted carborundum spring regulates the length of the circulating flame and controls excess-air mixing.
York-Shipley, Inc, 89 Jessop Place, York, Pa.

SPECIAL CANVAS FINISH ELIMINATES STEEL CASING

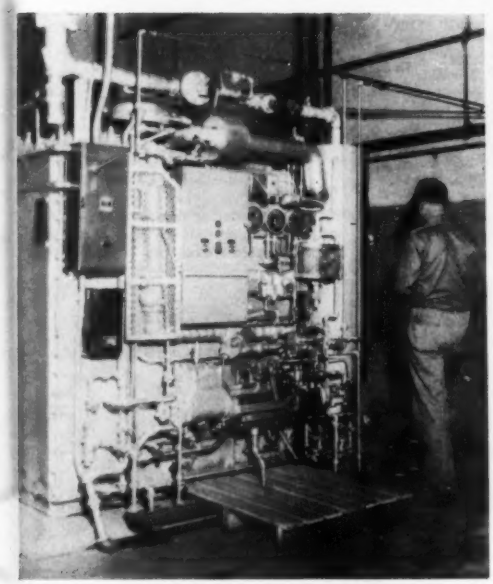
P500 • Proper preparation and handling of canvas eliminates steel boiler casings. The advantages claimed are: (1) reduction of enclosure costs in both material and labor (2) improved air tightness (3) improved appearance (4) a weatherproof surface (5) a surface suitable for painting.

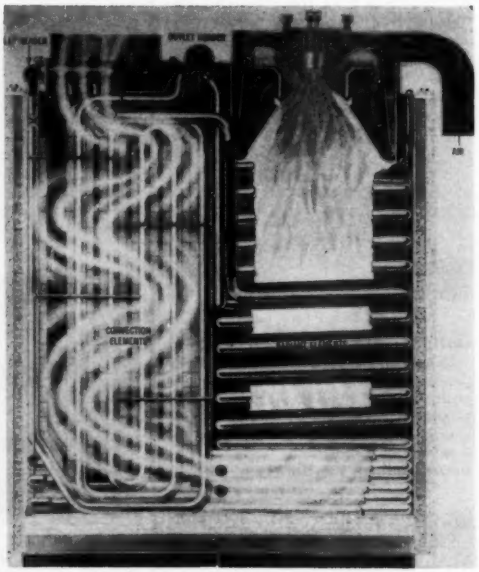
The problem of surface temperature, expansion and adhesion were the chief stumbling blocks in applying canvas for boiler enclosure. Under modern boiler design with regard to heat loss and surface temperature the proper amount of insulation gives a temperature gradient that brings the canvas temperature well under the range of 180-190 F surface temperature considered safe. Part of the answer has been development of a plasticized synthetic resin emulsion, heat resistant, that has good adhesive properties.

Further, this adhesive has enough elasticity to overcome the most extreme ex-



Compact, Quick-Steaming Boiler Uses Forced Circulation





P400 • Controlled recirculation of boiler water makes possible a heat-transfer rate in the oil- or gas-fired C-E Re-circulation Steam Generator that produces three to four times as much steam per cu ft of space as a conventional watertube or packaged fire-tube boiler of its capacity range. This high transfer rate, in turn, gives a quick-steaming, compact unit that requires a space only 6 ft 11 in. long, by 5 ft 5 in. wide, by 6 ft 11 in. high for a 6000-lb-per-hr capacity at pressures up to 300 psi.

This unit was originally designed for diesel-engine train-heating service. Its features of quick-steaming high-pressure output make it applicable for industrial plants needing a relatively small or intermittent steam supply at moderately high pressures. It is also suited for remote areas where pipe installation and maintenance costs from a central steam source are too high.

The generator consists of the heating elements, a feedwater pump, feedwater regulator, circulating pump, burner, fuel-oil pump, air blower and a driving motor. Water to the inlet header supplying the watertubes passes through individual metering orifices that assure a proper circulating head in all elements. Outgoing steam leaves the outlet header to enter a vertical drum, known as the steam separator. Here the steam and any moisture entrainment are separated; the steam going to the outside steam line and water to suction side of pump.

Rate of water flow through the tubes is rapid enough to prevent any scale buildup. Whatever solids are carried in the water have a chance to drop out of solution at the separating drum. Here they fall to the bottom of this drum to what amounts to a sludge tank for blowdown out of the system.
Combustion Engineering-Superheater, Inc., 200 Madison Ave, New York 16, N. Y.

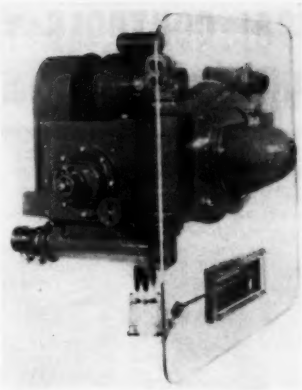
pansion problems such as those encountered with tube-supported enclosures. The recommended practice is to apply the canvas while the boiler is operating.

Lastly the adhesive and canvas combine to cover any shrinkage cracks in the finish coat of insulating cement. In addition they seal against air leakage due to porosity of the insulation.

There are several methods for applying the canvas finish. Several suggestions advanced by the manufacturer are shown in the three drawings on page 146. The top one, for applying small panels of canvas, shows how to lap adjoining sections. The center and bottom drawings give suggestions on handling junctions with wall columns.
Bigelow-Liptak Corp, Detroit 2, Mich.

OIL BURNER P110

Horizontal, rotary-cup atomizing burner recently announced in ratings of 9, 16, 25, 35, 50 and 60 gph is equipped with manufacturer's *Volumeter*. This allows use of all grades of oil up to No. 6 with varying viscosities without burner adjustment.
Iron Fireman Mfg Co, 1305 S W 12th Ave, Portland 1, Ore.



PACKAGED BOILER P1222

Shop-assembled, integral-furnace type boiler, the FM, is produced in standard sizes for loads ranging from 7000 to 25,000 lb of steam per hr. It is a watertube boiler, with completely water-cooled furnace.
Babcock & Wilcox Co, 85 Liberty St, New York 6, N. Y.

REFRACTORY INSULATION P601

Permanent, lightweight, nonshrinking insulation. *Hylag*, is a multi-use refractory insulation. It is reported not to dissolve, collapse, or powder off on contact with steam or water. It is said to withstand shock, vibration and abrasion and not be damaged by crushing. *Hylag* may be easily troweled or sprayed on brick, metal lath, or concrete block. The K factor is low. Only precaution is that the material must not be pressed on because it bloats within three-quarters of an hour after application and becomes honeycombed with air cells.
Continental Coating Corp, 304 E 44th St., New York 19, N. Y.

AIR COMPRESSORS and ACCESSORIES

AIR SEPARATOR P104

In seven inlet and outlet tapping sizes from ½ to 2½ in., these separators clean compressed air by centrifugal force. Moisture, oil, scale and other solids in the air are whirled outward to walls of unit where they drain to trap section. Clean air passes to device served. Float-operated trap automatically releases accumulated liquids as they rise to a level above that needed to effect a seal.
The Swartwout Co, 18511 Euclid Ave, Cleveland 12, Ohio

AIR COMPRESSORS P250

Horizontal duplex motor-driven compressors are fitted with anti-friction roller bearings throughout. Standard sizes of *O-CE* compressors are available in capacities of 350 to 10,000 cfm. They are 2-stage units suitable for air or gas compression. Three- or five-step control is furnished.
Chicago Pneumatic Tool Co, 6 E 44th St, New York 17, N. Y.

PORTABLE COMPRESSOR P329

Two-stage air-cooled compressor has 30-cfm capacity and maximum operating pressure of 180 psi. Available either in trailer model or hand-truck model. Equipped with ASME air receiver, oil-bath air cleaners, protective V-belt guard. Features include: circumferential cooling fins; tube and fin-type air-cooled intercooler; positive by-pass unloader that holds inlet valve open during idling; feather valve, cast-iron honed cylinders, full-floating wrist pins.
Worthington Pump and Machinery Corp, Harrison, N. J.

COMPRESSED-AIR ALARM P256

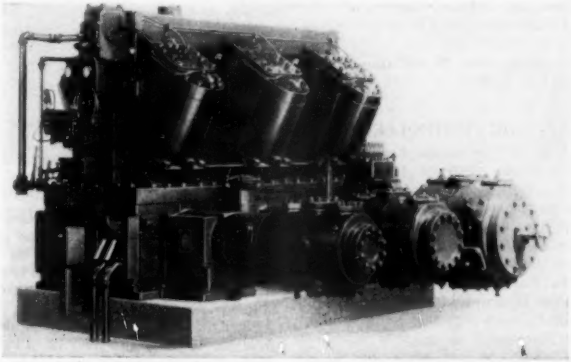
Low-pressure warning device whistles shrill alarm when pressure in any compressed-air system falls below minimum predetermined pressure for safe or efficient operation of equipment. Alarm is fully mechanical, entirely automatic and completely self-contained.
Airlarm PO Box 13034, Houston 19, Texas

COMPRESSOR P429

Quiet, vibration-free operation, low maintenance and operating costs are promised with the new 10-, 15-, 25-, 40- and 50-ton reciprocating compressors recently put on the market. Body design is cylindrical; compressor cylinders are mounted in *V* and *W* arrangements for the 4-, 6- and 8-cylinder models; all reciprocating forces are counterbalanced; crankshafts are dynamically and statistically balanced. Noise level is said to be 2 to 10 decibels (db) below other compressors.
Trane Co, La Crosse, Wis.

PORTABLE AIR COMPRESSOR P414

Designated as *Gyro-Flow 600*, it delivers 600 cfm free air at 100 psi. Weight, ready for use, is 9500 lb. Compressor is 2-stage, oil-cooled, rotating-vane unit. It eliminates pistons, connecting rods, valves and need for a clutch. Air discharged at less than 200 F under normal operating conditions.
Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.



ENGINE COMPRESSOR P326

Gas-engine-driven compressor is essentially the well-known V-angle XVG but improved and modernized by complete redesign. SVG built in two sizes, 330 hp with 6 cyl and 440 hp with 8 cyl. Controls and valves grouped at operating end.
Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.

All types of ELECTRICAL CONTROLS: Relays, motor starters, switches, etc.

INPUT CONTROLLER P233

Accurate, automatic control of temperature for electrically heated industrial equipment is possible with the Series 4700 *Atcotronic* input controller. It is based on a rate of charge and discharge of a capacitor that enables the user to "line out" without undue overshooting.

Automatic Temperature Control Co, Inc, 5200 Pulaski Ave, Philadelphia 44, Pa.

MANUAL MOTOR-STARTER P147

Motor Sentinel Class 10-023 is equipped with indicating light to show when motor is running. Available as double-pole switch with ratings up to 1-hp, 250-v ac or dc. Bimetallic overload protection allows momentary overloads but quickly disconnects motor on sustained overloads.

Westinghouse Electric Corp, Box 2099, Pittsburgh 30, Pa.

ADJUSTABLE THERMOSTAT P1111

Built-in adjustable heaters in thermostats for heating installations allow adjustments from 0.4 to 0.8 amp, enough to cover almost every installation. A simple turn of the adjusting screw on the back of thermostat eliminates the nuisance of carrying a variety of heating coils or plugs for proper heater-setting in a thermostat.

Perfex Corp, 500 W Oklahoma Ave, Milwaukee 7, Wis.

ELECTRONIC CONTROLLER P351

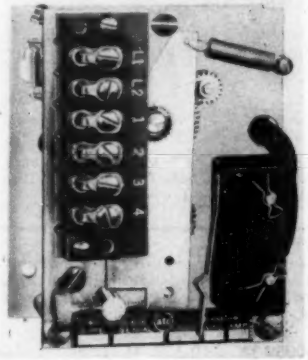
A line of instruments known as the *Cabinet Series* designed to incorporate auxiliary equipment into the case of a direct-reading controller. These instruments are used for measurement, indication, and automatic control of temperature, speed, flow, pressure, etc, including voltage and current.

Wheelco Instruments Co, Chicago 7, Illinois.

LEVEL SWITCH P321

Autocon Hi-Level safety switch needs but ½-in. rise in water level to operate. Unit functions by compressing air in bell chamber, which operates switch to set off either audible or visual alarm. Since neither floats nor electrodes are used, the device is not affected by low temperatures.

Automatic Control Co, 1005 University Ave, St. Paul 4, Minn.



MOTOR-DRIVEN TIMER P1074

Synchronous motor-driven time-delay device suitable for use in elevator control, machine tools, signal system, is rated for 115 v or 230 v; 25, 50 or 60 cycles. Switches are rated to carry 10 amp at 115 v and 5 amp at 230 v, ac, noninductive load.

Automatic Temperature Control Co, Inc, 5200 Pulaski Ave, Philadelphia 44, Pa.

AC VOLTAGE RELAY P537

Bulletin 401 voltage-sensitive relays are intended for use in ac circuits where a close voltage differential between relay pick-up and drop-out is needed. Typical application is protecting ac motors up to 2 hp against damage caused by low line voltages. Other uses include power and lighting bus transfer and in some cases over-voltage protection.

Ward Leonard Electric Co, Mount Vernon, N. Y.

INDUCTION REGULATOR P451

Line of 3-phase, dry-type, induction voltage regulators for regulated 3-phase power at low voltages. New line includes both self-cooled and forced-air-cooled regulators in standard 10 and 20% (raise and lower) ranges of regulation.

Standard line is being offered in ratings from 120 to 600 v and from 12 to 85 kva. Three-phase, dry-type ratings have been available in these sizes in the *Triplex* assembly, which consists essentially of three single-phase regulators on a single base.

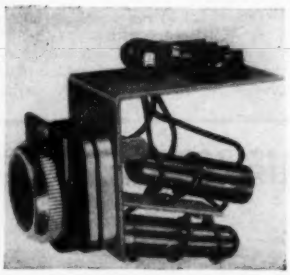
General Electric Co, Schenectady 5, N. Y.

CONTROL CENTER P530

Designed to accommodate any control system up to 600 volts, using components not larger than NEMA Size 5. Primary applications of *Multitrol* are for refrigeration and air-conditioning systems, industrial-plant machinery, generating-plant auxiliaries and similar installations where a group of motors can be independently controlled from a central location.

Prefabricated units containing control for a single motor are assembled and wired into a free-standing steel-enclosure section. Any number of sections may then be bolted and bussed together to form a *Multitrol* control center.

Ward Leonard Electric Co, Mount Vernon, N. Y.



MERCURY SWITCH P241

Suitable for hazardous, explosive locations this mercury switch is furnished with either pushbutton or selector knob. Mercury switch is hermetically sealed and mounted on a lever-operated armature.

Panalarm Products Inc, 7212 No. Clark St, Chicago 26, Ill.

COMFORT THERMOSTAT P516

Surface-type *Thermoray* is a special comfort thermostat functioning according to effective temperature. It applies to hot-water radiant heating as well as to electric radiant-heating panels. The instrument can be used for line or low-voltage circuits and can be furnished with double switch action for any special control sequence required.

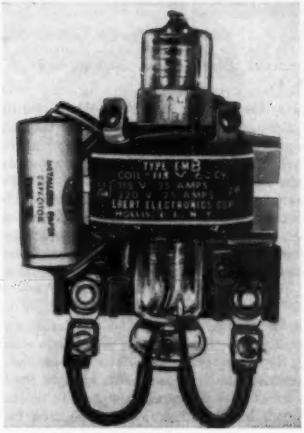
Sarcotherm Controls, Inc, Empire State Bldg, New York 1, N. Y.

MOTOR STARTER P439

Protection of operating personnel as well as the connected machine is stressed in the *Motor Watchman*, Class 10-100-S1. With ratings up to 600-v, 7½-hp polyphase, 5-hp single phase; or 220-v, 1½-hp dc, it starts, stops, and provides overload protection for single-phase, polyphase and dc motors.

The self-indicating handle, interlocked cover that prevents opening unless starter is "off," and safety latch to lock starter "off" during servicing are all personnel-protection features. Positive motor-protection is provided by the quick-make, quick-break, over-center toggle mechanism —*De-ion* arc-quenching—and bimetallic disk-type thermal overload relay.

Westinghouse Electric Corp, PO Box 2099, Pittsburgh 30, Pa.



MERCURY RELAY **P134**

Relay's energizing coil is in a resonant circuit. Hence external operating contact need carry only enough power to detune the circuit (about 8 ma, ac at 100 v). Relay is rated at 35 amp, 115 v; 30 amp, 220 v; 20 amp, 440 v.

Ebert Electronics Corp, 185-09 Jamaica Ave, Hollis 7, Long Island, N.Y.

PRESSURE SWITCH **P509**

Pressure drop in air filters, across coils, or resulting from power or blower failure, may be used to set in motion a pressure-actuated switch for actuating motors on automatic air equipment or for similar service. Pressure changes are reflected in the movement of a beryllium copper spring with a high-sensitivity micro switch. Switch comes in two models. No. 1620 has a 4½-in. dia and a minimum setting of 0.25 in. of water with a gap between make-and-break pressure of 0.120 in., or greater. The second model, No. 1625, has a 7-in. dia with a minimum gap between make-and-break pressure of 0.05 in. of water in the lower setting, and 10% or more of the setting in the higher ranges.

F W Dwyer Mfg Co, 317 South Western Ave, Chicago 12, Ill.

NEED MORE DATA?
Fill out and send in cards from page 175

VOLTAGE REGULATORS **P531**

Regulator controls, which are at least 99% accurate regardless of operating changes in temperature or load, are now standard equipment on all this company's station-type induction and step regulators.

New controls allow feeders to carry heavier loads for greater distances. This is possible because with Class 1 accuracy, more feeder drop can be tolerated without at any time exceeding permissible voltage limits.

General Electric Co, Schenectady 5, N. Y.

Temperature, Pressure Regulators, and many other MECHANICAL CONTROLS

TEMPERATURE MONITOR **P143**

Dependable means for automatic temperature supervision at remote and inaccessible locations in machinery, spaces and liquids. Single panel allows fast checking of up to 25 potential danger spots and areas. Instantaneous alarm and accurate temperature readings. Sensing elements are resistance bulbs of various types and ranges. Monitor is suitable for supervision of bearing temperatures in power-generating stations, rolling mills, railway rolling stocks, etc.

Thomas A Edison Inc, Instrument Div, West Orange, N. J.

CONTROLLER **P150**

Sensitive, precise, fast-operating controller works from air pressure and can be combined with flowmeters, temperature, pressure and level recorders to give automatic control of process within close limits.

Penn Industrial Instrument Corp, 3116 N. 17th St, Philadelphia 32, Pa.

LIQUID-LEVEL CONTROL **P762**

Designed to actuate a solenoid valve, magnetic contactor or other device requiring closing of an electric circuit, this control operates on the principle of a variable capacitor. It includes a control unit connected to a sensing element by a coaxial cable, which can be almost any length. Sensing element consists of a porcelain-coated steel rod supported concentrically in a steel tube, vented top and bottom.

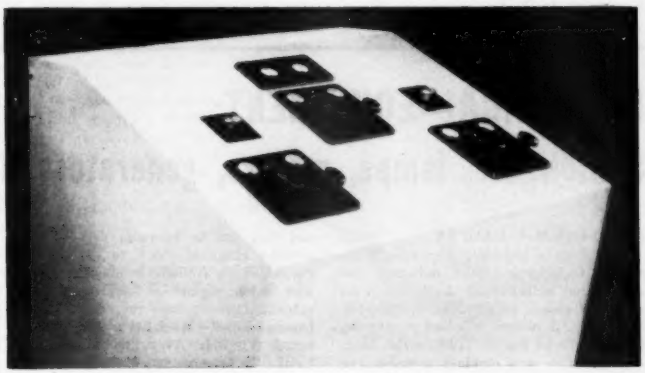
This element, when placed in liquid whose level is to be controlled, senses any change in capacitance due to rise or fall of liquid level. Change in capacity actuates a relay and indicating light through the action of an electronic tube in the control. Relay energizes a solenoid operated valve or motor controller to start or stop liquid flow into the vessel.

Thermo Instrument Co, Belmont, Calif.

VELOCITY CONTROLLER **P306**

Special proportional action velocity controller regulates air velocity leaving the doors of fume hoods, within range of 50 to 250 fpm. Its present application has been largely in working with radioactive materials where a fixed velocity is required with variable door openings.

Johnson Service Co, 507 East Michigan St, Milwaukee 2, Wis.



ELECTRONIC MASTER COMBUSTION CONTROL **P201**

Increased centralization of automatic control places more responsibility on fewer operators and on the control system for combustion and process applications. To make it easier to meet these conditions an electronic master combustion control has been developed. An electronic link connecting the master to the actuators readily eliminates the distance problem.

Each final control element is remotely linked to its master by an electronic circuit similar to an ac wheatstone bridge. This link consists of two voltage dividers or slide wires connected through an amplifier. The sender slide wire, comparable to two legs of a bridge circuit, is mounted on the master element. The receiving slide wire, the other two legs of the bridge, is mounted on the actuators and controls the fuel feeders, and air-control devices.

The position contractor on the receiving slide wire is driven to follow and repeat the position of the position contractor on the sending or master slide wire. Final regulating element controlled by the receiving slide wire assumes the exact position dictated by the master.

Republic Flow Meter Co, 2240 Diversey Parkway, Chicago 47, Ill.

COOLING-WATER CONTROL P778

Insertion-type, pneumatic temperature control, small enough to go into a 2-in. water line has a liquid-filled element that gives fast throttling control. Together with pneumatic valves, it saves water and improves efficiency in machines using water as a cooling medium.

Brown Instrument Div, Minneapolis-Honeywell Regulator Co, Wayne and Roberts Ave, Philadelphia 44, Pa.

PYROMETER CONTROLLER P152

Anticipation voltage developed by the *Capaciline*, Model 252 P, fed into the electronic-control circuit of the manufacturer's standard *Capacitrol* helps maintain a uniform condition within a heat-treating or process furnace at a relatively low cost.

Wheelco Instruments Co, Chicago 7.

PNEUMATIC CONTROLLER P307

Forced balance nonindication controller for pneumatic transmission system supplements the company's recently announced *Transaire* temperature and pressure transmitters and the miniature *Transet* recording receivers. The new controller, called *Tri-Act*, gives, in conjunction with the previously mentioned equipment: (1) faster, more accurate measurements of rapidly changing temperatures and pressures (2) closer process control with stability (3) continuous process record on a 30-day strip chart. All this information is contained in a 4⅜x5-in. miniature pneumatic receiver.

Taylor Instrument Co's, 95 Ames St, Rochester 1, N. Y.

HUMIDITY CONTROL P522

Adsorption-type packaged humidity-control unit, Model 100, gives precise control over a wide range of temperatures from —40 to +100 F. It is considered ideal for cold-storage plants and unheated warehouses requiring year-round dry-cold protection. It measures 45 in. long x 19 high x 16 wide. It has a 3-channel continuous adsorption dehumidifier with plug-in automatic operation, and is effective singly in enclosed areas up to 25,000 cu ft. It operates from a 110-v 60-cycle single-phase power service.

Dryomatic Corp, 812 North Fairfax St, Alexandria, Va.

INDUSTRIAL HUMIDIFIER P513

Complete, single-package industrial humidifier uses no ducts, pumps, compressed air or steam lines. All that is required is a supply-water feed line, which can come off the city main. No return line is required. Unit has a vaporization capacity of 1 gal per hr, weighs about 50 lb, is 12 in. wide x 14 high x 22 long. It emits water in a fine spray in just one direction.

Industrial Materials Purchasers Co, 401 Broadway, New York, N. Y.

COMBUSTION SAFEGUARD P502

Commercial oil burners that require immediate cutoff of fuel in a failure can have this protection from company's new electronic combustion safeguard system. This includes a switch amplifier contactor unit, phototube holder, and electrode holder. If the gas pilot does not ignite, the oil valve cannot open. If the oil flame does not ignite, the supply of fuel is cut off. After cutoff the motor operates 30 seconds to purge the nozzle or cup of unburned fuel. This prevents carbonizing and reduces field servicing.

General Electric Co, Schenectady 5, N. Y.

LIQUID-LEVEL DETECTOR P406

Precise, sensitive, liquid-level control, superior to either a differential-type meter such as a mercury manometer or a torque tube displacer serves, according to the manufacturer, those applications considered beyond the capabilities of differential or torque tube displacer transmitters. The new displacement detector and transmitter uses a bellow seal to insure sensitivity.

Two bellows-assemblies mount above a set of levers which transmit movement to the balancing bellows. The bellows movement opens the supply-air port, permitting air to enter the bellows. This air pressure continues to increase until enough force is created to bring all components of the system back to their original position before any change in level takes place.

Brown Industrial Div, Minneapolis-Honeywell Regulator Co, Wayne & Roberts Ave, Philadelphia 44, Pa.

TEMPERATURE REGULATOR P614

Self-contained, tight-closing, ruggedly constructed temperature regulator has clearly marked, calibrated, adjusting dial to give exact setting in degrees F. Available in two styles, ½ in. through 4. Regulator is completely assembled and requires no linkage or adjustment before or after installation, except the initial setting of the control dial to the temperature desired.

Barber-Colman Co, Rockford, Ill.

ELECTRICAL EQUIPMENT:

Switchgear, lamps, motors, generators, transformers, etc.

LOW-VOLTAGE LAMPS P475

Saf-T-Lite is becoming increasingly important in helping reduce industrial casualties due to electrical shock. In many industrial plants, public utilities, railroads, hotels, etc, it is now standard equipment, having replaced the old 110-v trouble lamp. *The Reel-Lite* unit employs a well-known reel for holding the extension cord. It is available in several different sizes with extension cords of 50 and 100 ft.

Etraco Manufacturing Co, Inc, Woods Church Road, Flemington, N. J.

SELENIUM RECTIFIER P438

High-voltage cartridges with voltage ratings up to 25,000 v per cartridge and current ratings up to 75 ma have been recently developed. These rectifier cartridges utilize five different selenium cell sizes varying from ⅛- to 1-in. diameter, with corresponding current ratings varying from 1.5 ma up to 75 ma.

They are designed to meet rigid humidity, altitude-vibration and shock specifications, and they can be operated over the temperature range of –55 C to 100 C. These cartridges are available in phenolic tubings with either pigtail or ferrule-type terminals.

International Rectifier Corp, 6809 South Victoria Ave, Los Angeles 43, Calif.

ROUGH-SERVICE LAMP P538

A smaller, 100-watt rough-service lamp that fits standard wire-guard extension-cord equipment. Applicable to all types of rugged service, this lamp is particularly adaptable to use in shipyards and after-dark construction projects because it emits more light from a smaller, more breakage-resistant bulb.

Bulb is 2⅝ in. in diameter; ¼ in. less than the former A-23 bulb. With a maximum length of 5 5/16 in. from top of bulb to bottom of base, it is ¾ in. shorter than the A-23.

Westinghouse Electric Corp, Lamp Div, Bloomfield, N. J.

PLUG-IN CIRCUIT BREAKER P536

Breaker for 15- to 50-amp service, featuring quick-make, quick-break operation and thermal-magnetic protection. Contacts are opened and closed with a fast, clean action, avoiding excessive burning or arcing of the contacts due to improper operation.

Breaker is tripped by either of two impulses. Thermal action of bimetal trip element responds to an overload condition, although harmless temporary overloads will be passed without opening the circuit. Magnetic action instantly opens the breaker in a short circuit. Unit is designed for use in a new line of load centers and panelboards.

Trumbull Electric Mfg Co, Plainville, Conn.

RECLOSING RELAY FOR POWER CIRCUIT BREAKERS P539

Type ACR is specifically designed for use on automatic reclosing equipment with

all types of power circuit breakers. Completely automatic reclosing equipment protects feeders against unnecessary outages due to temporary faults, by automatically restoring service.

Relay features optional automatic reset at a definite time after any successful reclosure attempt; a self-contained means for permitting instantaneous initial and time-delay subsequent breaker tripping; and faster immediate reclosure ACR relay may be adjusted for one, two or three delayed reclosures in addition to the immediate reclosure.
General Electric Co, Schenectady 5, N. Y.

SWITCHBOARD P839

Specifically designed for distribution at 600 v and under, this switchboard has a universal frame and six basic components. They are circuit-breaker cell structures, mountings for circuit breakers, rear frames, bottom, top, and bus-supporting members. Flexible feature of the switchboard centers about the square-hole punchings at regular intervals in all six parts: This permits final assembly by bolting with ⅜-in. carriage bolts instead of welding.

This assembly method allows mounting future additions at either end of the structure, or rearrangement of an existing switchboard without factory assistance.
Westinghouse Electric Corp, PO Box 2099, Pittsburgh 30, Pa.

DC MOTORS FITTED WITH PRE-LUBRICATED BEARINGS P133

Proven-design features in the ac *Life-Line* motor have now been adapted to type SK dc motor. They include the rolled-steel frame and protection to any degree required form dripproof to dripproof-protected and totally enclosed.

As with all prelubricated bearings, ball bearings in this series are packed with proper amount and type grease that lasts for the bearing's life. No additional lubrication is needed.
Westinghouse Electric Corp, P. O. Box 2099, Pittsburgh 30, Pa.

METALCLAD SWITCHGEAR P148

Indoor, air-magnetic circuit breakers in metalclads now come in interrupting ratings of 50, 150 and 250 mva. Service voltages range between 2.3 and 4.16 kv.
Allis-Chalmers Mfg Co, 952 S. 70 St, Milwaukee, Wis.

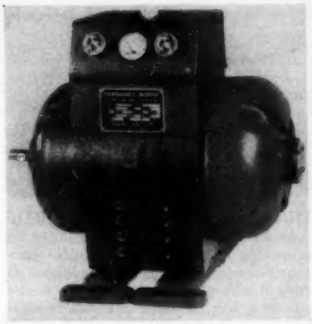
DRY-TYPE TRANSFORMER P322

Hermetically sealed unit with Class B insulation that runs but 10% higher in price than conventional open-type units. Test in GE labs show Class B insulation in a nitrogen atmosphere can be satisfactorily operated at the 180 C temperature previously assigned only to Class H materials. These nitrogen-filled, sealed, dry-type transformers are available in ratings up through 1500 kva and 15 kv. They can be installed indoors without fireproof vaults.
General Electric Co, Schenectady, N. Y.

BELTED GENERATOR P771

This generator may be belted to any available power unit or tractor to supply electricity when main line fails. Generators are furnished in two sizes, 3 and 5 kw.

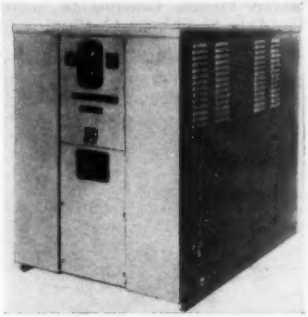
Units are the 4-pole, self-excited type, designed for operation at 1800 rpm, 60 cycles, 120 volts. Two *Twistlock* receptacles are furnished with the 3-kw units and three with the 5-kw units. Convenient slide rail makes it possible to adjust belt tension after the power unit has been spotted in place.
Fairbanks, Morse & Co, 600 S Michigan Ave, Chicago 5, Ill.



UNIT SUBSTATION P319

A "midget" load-center unit substation designed for low-voltage lighting and power loads in industrial plants. *Inductrol Power Pack* incorporates an air circuit breaker, a dry-type transformer and an air-cooled induction regulator in one steel housing.

Unit is available in either single- or 3-phase ratings having a capacity from 15- to 100-kva. Incoming service voltage can be either 480 or 600 volts, 60 cycles and regulated output at 120/240 or 120/208 volts.
General Electric Co., Schenectady 5, N. Y.



AUTO TRANSFORMERS P432

These transformers are wound 3-phase open delta with taps at 50%, 65%, 80% and 100% of line voltage. They conform to NEMA standards for medium duty.

Standard types are available from 5 to 200 hp, in both 220 and 440 volts, 50/60 cycles. Special voltages as well as 2-phase units and other frequencies can also be obtained.
Etraco Mfg Co, Inc, Woods Church Rd, Flemington, N. J.

FREE CARDS
On page 175 for your convenience in ordering more information

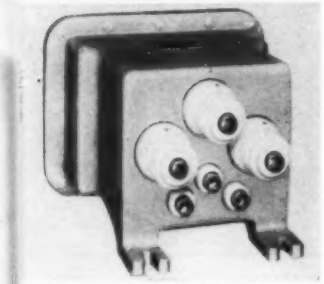
OUTDOOR COMBINATION BREAKER-RECEPTACLES P300

Magnetic circuit breakers and receptacles are incorporated in one compact enclosure. Receptacles are already wired in. Only connections necessary are those to the line. Equipment is available with one to four fully magnetic circuit breakers in combination with one or two receptacles. Ratings are supplied in any combination up to 50 amp each. *Bulletin EB 2013* available.
Heinemann Electric Co, Trenton, N. J.

TILTING MOTOR BASE P416

A lightweight tilting motor base is adjustable in width and length for fractional-horsepower motors. In addition to using it with variable-speed pulleys, it also acts as a belt tightener and can be used for easy belt changing on cone-step pulleys. Speed changes can be made while machine operates.

Lovejoy Flexible Coupling Co, 5141 West Lake St, Chicago 44, Ill.



INSULATING TRANSFORMER P450

Telephone-insulating transformer was designed to protect low-voltage telephone circuits and equipment—and the maintenance personnel who work on them—from momentary high-potential surges, such as are encountered on exterior telephone lines paralleling power circuits.

Operating at frequencies from 20 to 30,000 cycles, this telephone-insulating transformer is oil-immersed in a lightweight, sealed aluminum case.

Federal Telephone and Radio Corp, 100 Kingsland Road, Clifton, N. J.

OUTDOOR CT P138

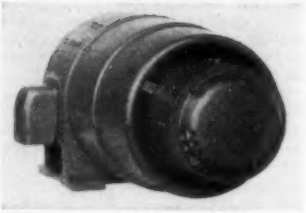
Type KO current transformer can be mounted in any position, is well suited for metering and heavy-duty relay application. CT's are available in standard ratings up to and including 800 amp and through voltage classes 5, 8.7 and 15 kv.

Allis-Chalmers Mfg Co, 952 S. 70 Street, Milwaukee, Wis.

FLEXIBLE CONDUIT P144

Sealtite is flexible, liqid-tight conduit to protect electrical wiring from water, oil, chemicals etc. It is designed for installation where movements are small or infrequent.

The American Brass Co, Waterbury 20, Conn.

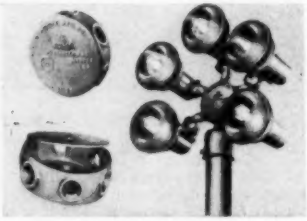


SYNCHRONOUS GENERATORS P453

Line of *Tri-Clad* high-speed synchronous generators are extended down through 1.875 kva. This now makes available a complete line of generators in *Tri-Clad* construction from 1.875 to 1250 kva. New machines added to the line come in four basic designs, which have ratings from 1.875 to 50 kva.

Designated as Types ATI, ASI and ATB, the generators have frequency ratings of 60 and 400 cycles. Three standard types of 60-cycle generators are offered, providing a range of characteristics for several categories of voltage-regulation and motor-starting requirements.

General Electric Co, Schenectady 5, N. Y.



OUTDOOR FLOODLIGHTS P435

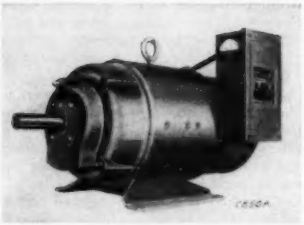
Weatherproof Cluster Box No. 25 lights for outdoor protective lighting. Designed to conserve critical aluminum, the new unit combines tough aluminum alloys that are precision die-cast. A removable cast-aluminum cover plate sealed with a heavy cork gasket provides easy access to inside wiring. Each box has six ½-in. tapped holes to take from one to five standard lampholders for the 150-, 200- and 300-watt outdoor weatherproof reflector bulbs available as standard stock from all major lamp-bulb manufacturers.

Stone Manufacturing Co., 489 Henry St, Elizabeth 4, N. J.

CATHODIC PROTECTION P301

Underground metal pipe, or what have you, can have its life lengthened by using cathodic protection employing magnesium anodes as the "sacrifice metal." By setting up an electrical circuit with the underground metal as the cathode and the *Anode-Pak* unit, consisting of either a 17- or 32-lb magnesium pack as the anode, the underground metal can be protected.

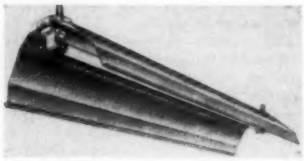
Apex Smelting Co, Chicago 12, Ill.



EMERGENCY GENERATOR P853

Tractor owners can have their own low-cost emergency electric power by belting this 60-cycle generator to their present tractor. Unit is available in 3000-, 5000- and 10,000-watt capacities. Unit features a mounted control box with an ac voltmeter, permitting adjustment of generator speed to correct voltage.

D W Onan & Sons, Inc, 3623 Royalston Minneapolis 5, Minn.



MERCURY-LAMP REFLECTOR P135

High-bay 3-kw reflector provides 55-deg crosswise shielding. Fixture has lampholders, drop-guards and wire connection boxes, with heavy-duty hanging loops.

The Edwin F Guth Co, 2615 Washington Ave, St. Louis 3, Mo.

BRAKE-MOTOR P800

Tri-Clad motors are available equipped with Stearns magnetic brakes in a one-package unit. All types, up to 20 hp, 90 lb-ft static torque, are available with explosionproof, electrically operated brake. Brakes, even on the open-type motors, are totally enclosed. Brake cover is sealed to the motor housing to protect against harmful atmospheres, dust and dirt. And as a safety feature, to protect against personal and equipment damage, the brake will continue to hold even if power fails during operation because of its spring-set, solenoid-release design; an important feature.

Brake linings are made from high friction material. In normal operation the only maintenance is a screwdriver adjustment to compensate for wear. A wear indicator, viewed through a plastic window, tells when this adjustment is necessary.

General Electric Co, Schenectady 5, N. Y.

TOTALLY ENCLOSED MOTOR P324

Line of type-QZE squirrel-cage motors now include 7½ hp, 1800 rpm, and 5 hp, 1200 rpm. Ball bearings have ample grease space to permit sealing for life of the bearing if desired.

Fairbanks, Morse Co, 600 S. Michigan Ave, Chicago 5, Ill.

OZONE LAMP **P856**

Glass bulb, less than 1½ in. in dia, gives out small concentrations of ozone that are useful in making odors less noticeable. It is used with a ballast in a simple fixture that allows the free escape of ozone but shields the eyes from the ultraviolet energy generated by the lamp. One lamp produces enough ozone to mask odors in areas up to 1000 cu ft.

General Electric Co, Nela Park, Cleveland 12, Ohio.

SWITCHBOARD GAGES **P238**

Full-view Type K-24 circular scale provides maximum readability from the steepest angles. There are no objectionable shadows on the scale even under bad lighting conditions.

Westinghouse Electric Corp, PO Box 2099, Pittsburgh 30, Pa.

TEST LIGHT **P444**

Lo-Volt Test Lite, Model #1300, is encased in a plastic housing that will stand abuse. Flexible leads with heavy, durable coverings 10 in. long are terminated in convenient spring clips.

Plastic bulb lights up in an easily seen brilliance on any voltage from 3- to 25-volts ac or dc. It is especially adaptable for low-voltage controls such as thermostats, etc, and may also be used with a battery supply to test for continuity. A second model is offered as the *Lo-Volt Test Lite*, Model #1310, covering a range from 6- to 50-volts ac or dc.

Industrial Devices, Inc, Edgewater, N. J.

HIGH-TEMP REACTORS **P535**

Glass insulation is now being used to increase life of cast-in-concrete reactors. This new insulation is capable of withstanding extremely high operating temperatures without deterioration and is completely unaffected by moisture.

General Electric Co, Schenectady 5, N. Y.

GEARED MOTOR **P431**

Single-reduction, *Klosed-tite* construction for atmospheres containing nonexplosive dusts, vapors and injurious foreign materials. An external fan forces powerful cooling blasts of air over streamlined case.

Output shaft ratings are the six AGMA speeds starting at 780 rpm down to and including 280 rpm. Unit is totally enclosed and includes labyrinth seals and ball bearings lubricated for life.

Sterling Electric Motors Inc, 5401 Anaheim-Telegraph Rd, Los Angeles 22, Calif.

POTENTIAL TRANSFORMER **P136**

Design changes in single- and two-bushing transformers have reduced weights up to 60% in some ratings. Finished product is hermetically sealed, hence free from breathing. This feature lengthens life of insulating oil since oil is protected from oxidation.

Allis-Chalmers Mfg Co, 952 S. 70 St, Milwaukee, Wis.

EMERGENCY LIGHT **P642**

Automatic, emergency hand lamp that plugs into any 110-v ac wall outlet and furnishes instant, automatic emergency lighting when the regular source of current fails. Adjustable 21 cp flood-type head is designed to fit 7½-v battery. Can be manually operated.

Electric Cord Co, 195 William St, New York 38, N. Y.

MAGNETIC STARTER **P637**

Explosion- and weather-proof magnetic starters available in sizes 0, 1, 2, 3 and 4 for a wide variety of uses. Typical applications are found with manufacturers of chemicals, explosives, fertilizers, soaps, paints, papers, petroleum, pharmaceuticals.

Arrow-Hart & Hegeman Electric Co, 103 Hawthorn St, Hartford 6, Conn.

HEAT EXCHANGE EQUIPMENT

OIL PREHEATER **P809**

Multi-pass, high velocity, electric oil preheater provides a fuel of uniform viscosity, free from worries of carbonization of heating surfaces.

Hynes Div, Martin-Quaid Co, 1893 W. Sedgley Ave., Philadelphia 32, Pa.

LIQUID SAMPLE COOLER **P1269**

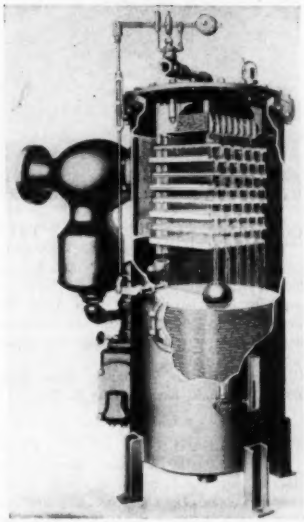
Stainless-steel, shell and tubular coil heat exchanger of all welded construction employs the counterflow principle to cool boiler and boiler feedwater samples for test purposes. Sample cooler is designed for 1500 psi, 600 F on the cooling-coil side and 150 psi on the stainless-jacket side.

Worthington Pump & Mchy Corp, Harrison, N. J.

HEAT EXCHANGER **P116**

Corrosion-resistant materials used only where required—as flange inserts, and for the inner tube contacting the fluid or vapor being heated—produces a low-cost heat exchanger, the *Econalloy*. This heat exchanger can be supported horizontally or vertically along a wall or on hangers. Unit comes in sizes from fraction of a sq ft of heating surface to several hundred and in lengths up to 30 ft per segment. Tube sizes range from ¼ to 4 in. for pressures up to 900 psi and temperatures of about 700 F.

Martin-Quaid Co, 1893 Sedgley Ave, Philadelphia 32, Pa.



FEEDWATER HEATER **P424**

Fabricated steel feedwater heater, the *Junior*, has specially designed stainless-steel trays to disperse feedwater in thin curtains over a large area. Exhaust steam heats up the water. Every 11-F increase in feedwater temperature by this means saves about 1% in fuel.

Swartwout Co, 18511 Euclid Ave, Cleveland 12, Ohio.

HEAT EXCHANGERS **P112**

Shell and tube bundle heat exchanger, the *A-800*, has been developed for oil cooling in diesel locomotives or engines, gasoline engines or similar applications. Bonnets provide smooth inlet and outlet flow with minimum impact on headers.

Young Radiator Co, Racine, Wis.

PROCESS TEMPERATURE **P1025**

A preformed, extended companion line with substantial surface-area contact on parent line carries accurate temperature information on temperature of any insulated process line. Parent line can be welded, sweated or flanged construction. One end of each companion-line length has special extruded neck to provide a slip fit over end of next lengths so the joints may be brazed or silver-soldered in assembly.

Cond-O Therm, 18 Littleton Ave., Newark, N. J.

HEAT EXCHANGER **P605**

Two-fluid-path produced by a concentric tubing with radial fins gives a heat transfer suitable for a wide range of temperature and pressure requirements. CRF tubing has been made with six radial fins in diameters of 1 and 1⅜.

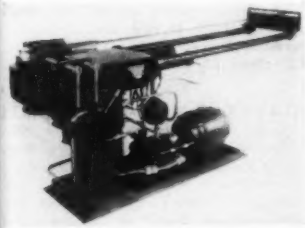
Modine Mfg Co, Racine, Wis.

Paint spray, metal spray, tools, lubricating devices, and all kinds of MAINTENANCE & SAFETY EQUIPMENT

ALIGNMENT INDICATOR P251

Crankshaft alignment indicator is suitable for all types of gasoline, diesel and dual-fuel engines. Dial type, it is graduated in 1/1000ths, plus or minus 25. Three extension rods and 7 distance pieces handle range from 2¼ to 18 in. between crankshaft webs.

Beckman Industries Inc, 420 Lexington Ave, New York 17, N. Y.



HYDRAULIC PIPE BENDER P332

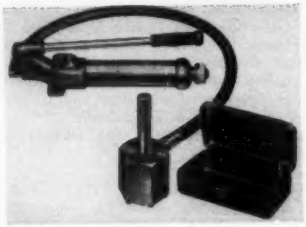
Small, compact bending machine is 21 in. wide, 34 in. high and 78 in. long, has power beyond its capacity of 1¾ in. OD by No. 16 BWG steel tubing. Unit is powered by standard 2-hp, 220/440-v, 3-hp, 60-cps motor furnished with bender.

Wallace Supplies Mfg Co, 1300 Diversey Pkwy, Chicago 14, Ill.

AUTOMATIC EXIT LIGHT P243

This automatic emergency exit light will help people find their way out should the regular current fail. Under normal conditions the unit operates in the same manner as a regular exit light. But if the regular source of power fails, this unit will operate immediately from power furnished by batteries within the fixture. Unit also furnishes a powerful downward beam to light floor area.

Electric Cord Co, 195 William St, New York 7, N. Y.



CONDUIT HOLE CUTTER P1143

Pump-operated device cuts ½-in. to 4-in.-size conduit holes in metals up to 10 gage. Cutters are standard type that have been associated with hand-operated knockout punches. This device simply replaces the bolt, hence eliminates a certain amount of hazard and manual labor.

Patterson Equipment Co, PO Box 163, Denair, Calif.

CONCRETE SAWS P117

Three portable concrete saws, two gasoline-powered and one electric motor-driven, have cutting speeds of 12 ft per min for asphalt; 5 ft per min, 1 inch deep, for limestone concrete. Maximum cut is 6½ in. deep. Three-point blade suspension eliminates blade binding.

Clipper Mfg Co, Concrete Saw Div, 2800 Warwick, Kansas City 8, Mo.

STEAM CLEANER P123

Fully automatic, one-man operation is claimed for the General, a vapor steam cleaner. Steam issuing from the heating coils has a metered quantity of cleaning compound already dissolved in a hot-water bath fed into it. Mixture emerges as a jet from a cleaning-gun attachment.

General Equip Div, Sterod Mfg Co, 444 Frelinghuysen Ave, Newark 5, N.J.

FIRE PROTECTION P304

Dry-chemical pipe system, designed for automatic protection of industrial fire hazards from such installations as transformers, diesel and gasoline engines, oil-storage tanks, is operated by a heat-actuated device. When fire starts and temperature increases, air expands within this device. It trips a nitrogen-cylinder release, pressuring the dry-chemical container. Dry chemical is then discharged through strategically located distribution pipe heads into the fire area.

Ansul Chemical Co, Marinette, Wis.

PRESSURIZED FIRE EXTINGUISHER P316

Designed for hazardous metal fires, pressurized fire extinguisher is effective on magnesium, sodium, potassium, zinc, powdered aluminum surfaces. It employs Met-L-X dry powder which fuses to form an air-excluding crust over the burning metal. It is moisture-repellent, free-flowing, nontoxic, noncorrosive, and nonabrasive.

Ansul Chemical Co, Marinette, Wis.

PIPE-CUTTING AIDS P1280

Tool tray attaches to legs beneath power units. Tray with vertical retaining edge holds tool in handy position while working.

Aluminum oil strainer is placed beneath power units over 5-gal pail. Oil and chips drop into strainer, permitting easy disposal and re-use of oil.

Beaver Pipe Tools, Inc, Dane Ave, Warren, Ohio

BARREL TILTER P127

Ratchet-controlled, long-handled, structural-steel barrel tilter provides safe way to draw off acid and other liquids from barrels. Cradle and supporting base are structural steel with all members riveted or welded. A safety air-vent pouring spout insures even flow of liquid without spurts or splashes. Flow capacity is 5 gal per min.

General Scientific Equip Co, 2700 W Huntingdon St, Philadelphia 32, Pa.

FLARING TOOL P1263

Improved functioning, longer service life claimed for Model 410 combination tube flaring tool. It combines a flaring pin in a vise slide on a split die block with a series of holes to accommodate ¼, 5/16, ⅜, ½ and ⅝ in. tubing.

Parker Appliance Co, 17325 Euclid Ave, Cleveland 12, Ohio.

STEAM-JET CLEANER P106

Smaller, all-electric *Steam-Jet* cleaner, JC-20 16 in. wide by 40 in. long, has built-in high-pressure *Speedylectric* boiler, Model 600-3, that enables it to use steam

along with solvents for cleaning service. Rated at 20 kw, unit consumes about 15 kw per hr under ordinary operation.
Livingstone Engrg Co, 100 Grove St, Worcester 5, Mass.

SOLDERING GUN P610
Lightweight, balanced, soldering-gun features (1) a nontiring pistol grip (2) extra-long-reach extension (3) dual heat permitting choice of either 100 or 150 watts (4) built-in full-view light. Various tips may be used, and no tools are required to change them. This model, Cal-88, has a single-pole design, which allows deep penetration without danger of unsoldering other parts in close work.
Caliri Mfg Co, Inc, 15 Union St, Lawrence, Mass.

SAFETY SIGNS P602
Self-adhesive *Quick-Lable* safety signs are printed on extra-strength cotton cloth and coated with silicone plastic to protect them from dirt, grime, moisture and weather. Signs, which come mounted on handy dispenser cards, may be quickly removed and applied. They stick without moistening to any clean surface.
W E Schneider, W H Brady Co, Dept 393, Chippewa Falls, Wis.

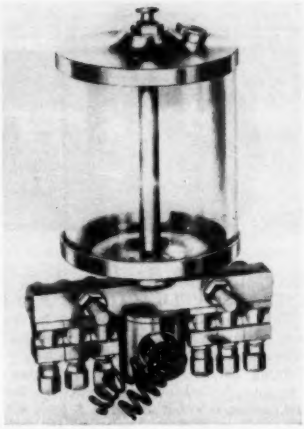
PORTABLE HAMMER AND DRILL P430
Combination, portable, 15-lb, aluminum-alloy-body power tool, *the Do-All* has arc motor equipped for three jobs: (1) drilling concrete and masonry (2) driving, grinding, buffing (3) drilling metal and wood. *The Do-All* has a universal motor with fan ventilation and a start-stop switch in the handle.
Wodack Electric Tool Corp, 4627 W Huron St, Chicago 44, Ill.

CONVEYOR LUBRICATOR P534
This automatic 12-point lubricator was especially designed for automobile body conveyors. All the critical points of wear are reached with this controlled lubrication that were formerly lubricated by hand.

The 2-gal reservoir, sufficient for a two weeks' supply, is equipped with air regulator and pressure gages, as well as the necessary manifolds, flexible connections and nozzles required to deliver oil to vital points.
J N Fauver Co, Inc, 49 W Hancock, Detroit 1, Mich.

GREASE-PUMP KIT P434
A *Lubrikit* for reloading individual bearings and centralized lubricating systems. Unit consists of an electrically operated barrel pump, mounted on a 400-lb grease drum for filling grease reservoirs, a hand transfer pump on a 100-lb drum for delivery of oil, and a tool box containing hand tools, miscellaneous fittings and hand guns for servicing individual bearings.

Necessary hose, nozzles and gages are included.
J N Fauver Co, Inc, 49 West Hancock, Detroit 1, Mich.



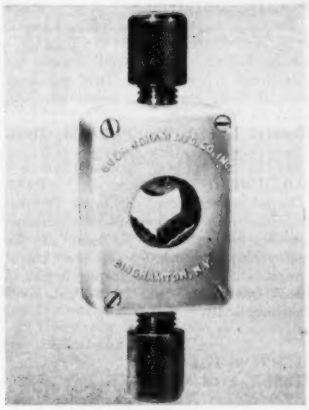
MULTIPLE-FEED OILER P1151
Centralized system of lubricating 1 to 20 bearing points on machine tools, automatic machines, printing presses, conveyors, etc. Oil is fed by gravity from large reservoir through individually adjustable needle-valves, then through copper or neoprene tubing to various bearings.
Trico Fuse Mfg Co, 2948 N 5th St, Milwaukee 12, Wis.

INFORMATION PLEASE!

Send in free cards on page 175 for additional data.

HAND TOOL P129
Streamlined, slim, light-in-weight, well-balanced line of combination and open-end wrenches in all sizes, is made in long and short series with box wrench end in either single or double hex. Important feature according to the maker, is development of conveniently narrow heads without sacrifice of tool strength.
Bonney Forge & Tool Works, Allentown, Pa.

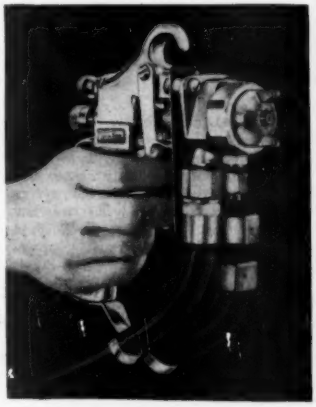
SPRAY GUN *(photo at right)* **P309**
Dry superheated steam acts as the atomizing medium for a complete line of paint-spraying equipment. The steam heats the finishing material, making it possible to use materials of higher viscosity and heavier coats without sagging or running. Difficulties of pinholing and cropping normally caused by entrapped air are greatly reduced. The S-100 steam spray gun dissipates the heat caused by the steam in the gun so it can be operated continuously in comfort with bare hands.
American Brake Shoe Co, Kellogg Div, 97 Humboldt St, Rochester 9, N. Y.



THREAD RESTORER P132
Closely spaced studs and bolts that are battered, distorted or rusted can be readily renewed with adjustable cutting-jaw-type thread restorer. Unit has swing of only 2 5/16 in. and its adjustable jaws can be fitted by a twist of the handle to any male thread of ¼ to 1 in. root diameter, either right or left hand.
Buckingham Mfg Co, Inc, Binghamton, N.Y.

NIPPLE CHUCK P1125
Threading short nipples with any threading machine or vise can be done with this nipple chuck, which can be fitted without requiring special tools. Adapters are made for ¼, ⅜, ½, ¾, 1, 1¼, and 1½ in. The chuck itself holds 2-in. pipe.
Ridge Tool Co, Elyria, Ohio.

RIVET SETS P109
Spalling and mushrooming of rivets are things of the past according to maker of *Wedge Grip* safety steel rivets. Five standard sizes for ⅛ to 9/32 in. rivets.
M E Cunningham Co, 183 East Carson St, Pittsburgh 19, Pa.



PLASTIC DRILL **P225**

Rotary, polystyrene, 2-ft-long plastic drill, injection molded for a window-type air conditioner, has 18 small louvres for directional delivery of air. Drill will be a part of ¾-hp model air conditioner supplied by York Corp.

General Electric Co, Pittsfield, Mass.

SOLDERING TOOL **P153**

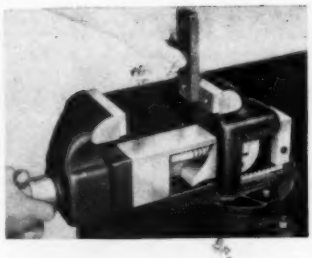
Portable "Standard," 1000-watt *Thermo-Grip* soldering tool operates on the resistance-heating principle. As soon as the tool touches the work, the secondary power circuit is completed and heating begins.

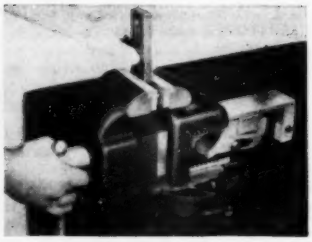
Ideal Industries, Inc, 1025 Park Ave, Sycamore, Ill.

SILICONE-TREATED TISSUE FOR GOGGLES **P280**

Magic Lens Tissue were developed for cleaning goggles and glasses in plants and offices. Sheets are interfolded so they can be handled in a simple dispenser.

The Silicone Paper Co of America Inc, 230 Park Ave, New York 17, N.Y.

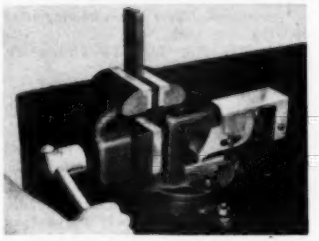




FAST MOVING MACHINIST VISE USES PUSH-PULL ACTION **P 963**

This 4-in. vise opens or closes to any position in one second through a push-pull action that eliminates spinning the handle. Turning handle counter-clockwise throws vise into neutral position ready for fast slide action in either direction. A push will close jaws on work . . . or a pull will open them. Then as jaws contact work, a clockwise turn of the handle applies full pressure.

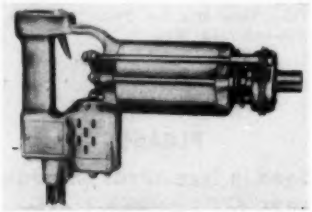
Dodge Mfg Co, Mishawaka, Ind.



SOCKET WRENCH **P115**

Five standard-size socket-head wrenches fold knifelike into a single sturdy handle. The assembly, called *Smitty*, is small enough to fit into the pocket. Individual wrenches are high-quality, tempered steel, easily replaced by removing the end bolt and sliding out.

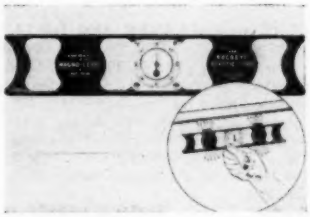
H D Hunter Co, 1109 S Robertson, Los Angeles, Calif.



HAMMER DRILL **P220**

Electromagnetic hammer drill, Model No. 10-RO, for high-speed hole drilling in concrete, brick and stone, has a carbide-tipped-spiral drill under automatic rotation. A rubber ratchet mechanism, actuated by recoil of each blow of the 3600-blows-per-min piston, reduces operator fatigue.

Syntron Co, Homer City, Pa.



MAGNETIC LEVEL **P923**

Permanent *Alnico* magnets are made a part of the 9x2-in., 10-oz *Magno-Level* so that it sticks to pipes or flat ferrous surfaces. It leaves the workman's hands free for lining up, straightening or fastening work in place.

Buckeye Plastic Corp, 1220 Huron Road, Cleveland 15, Ohio.

MAINTENANCE BRIEFS

UNIVERSAL SOCKETS **P443**

Five universal power sockets and a universal joint are designed for pneumatic or electric power-impact wrenches with ½-in.-square drive, but are equally serviceable on adapter-equipped ⅝- and ¾-in. drive wrenches. Sockets have ½-, 9/16-, ⅝-, 11/16- and ¾-in. hexagon (6-point) openings.

Plomb Tool Co, Washington and Santa Fe, Los Angeles 54, Calif.

STEAM-JET CLEANING **P314**

Plants that have high-pressure steam, but would like to take advantage of the *Speedy-lectric* system of steam jet-cleaning, can now get the new Model 100. It includes a high-pressure detergent tank mounted on a lightweight all-metal dolly with 10-in. rubber-tired wheels.

Livingstone Engineering Co, 100 Grove St, Worcester 5, Mass.

UTILITY GRINDER **P354**

New grinder, Model A, has fast-grinding, long-wearing abrasive wheels, heavy-duty, off-on toggle switch in cast-iron base. Grinder base is rubber mounted and drilled for permanent mounting, with a 7½-ft 3-conductor rubber-covered cable with non-breakable plug. Specifications include fast-starting ¼-hp 3450-rpm motor of dust-proof construction, single-phase, ac, 60-cycle, 115- or 230-v operation. Also available for 2- or 3-phase, ac, 60-cycle, 220- or 440-v service.

Dept AB59, The Lima Electric Motor Co, Lima, Ohio.

STEAM CLEANER **P318**

New combination steam cleaner and automotive cooling-system flusher, Model JO *Hypressure* Jenny, has a built-in steam *Thoro-Purge*. Combination features: (1) oil-fired, electric motor-driven steam cleaner operating at 80 to 120 psi with 90-gph capacity (2) cleaner that reverse-flushes a complete cooling system including radiator, engine block and water-type heaters in one operation.

Homestead Valve Mfg Co, PO Box 210, Coraopolis, Pa.

Paints and coatings, packing and gaskets, oils and greases, MAINTENANCE MATERIALS flooring compounds, mechanical seals, solder, thread compound

SEALING COMPOUND P1103

Putty-like sealing material, *Cauxeal*, always stays plastic, never gets hard. It requires no preparation, adopts itself readily to contours, expands and contracts with movement.

X-Pando Corp, 43-15 36th St, Long Island City, 1, N. Y.

DRY-LUBE PROCESS P1157

Process that produces a solid film or "dry" lubricant impregnated into surfaces of metals, plastics, rubber and ceramics to reduce friction and wear. Permanent film is unaffected by exposure to solvents or weather. These processes have already been used in reducing wear in internal combustion engines and other moving parts.

Pyrene Mfg Co, 10 Empire St, Newark 5, N. J.

MULTIPURPOSE GREASE P776

Alvania grease has a high melting point, good resistance to heat and water, hence can be used to replace sodium, calcium, aluminum and mixed-base greases. This multipurpose grease is pumpable at low temperatures. Since it eliminates the need for several different types, inventories may be simplified and there is less chance of applying the wrong grease to expensive machinery. Lithium hydroxy stearate is the base for this grease.

Shell Oil Co, 50 W 50th St, New York 20, N. Y.

PIPE SEAL P312

A new material called *Anaerobic Permasil* remains liquid as long as a stream of air bubbles through it, but it hardens in a few minutes when away from air. Its properties are thus opposite to those of paint, which hardens when exposed to air. Because this material can penetrate extremely small cracks for hardening, it is considered as possibly applying as a tight seal for threaded unions for pipe fittings. In other words, a "pipe dope." *Permasil* undergoes a chemical change called polymerization and hardens fully without the necessity of any evaporation.

General Electric Co, Schenectady 5, N. Y.

OPEN-GEAR GREASE P140

Tenacious and absorptive, Keystone Grease No. 32 is supplied in cartridge form to fit a special nozzle gun applicator that ribbons the grease. No. 32 is water repellent, its melting point is over 400 F and it retains plasticity with temperatures below freezing.

Keystone Lubricating Co, 21 St & Lippincott St, Philadelphia 32, Pa.

HIGH-PRESSURE GASKET P128

Compression gage-type gasket, with both inside and outside ring, has spiral-wound construction with alternating V-crimped plies of metal and filler. For all practical purposes the inside ring converts one of a pair of smooth-face flanges to a groove flange providing all the safety of a wholly contained gasket without the expense of machining a flange.

Flexitallic Gasket Co, 8th and Bailey St, Camden 2, N.J.

CHEMICAL-PROOF PACKING P234

A V-type packing, *Chemiseal No. 810V*, combines the advantages of Teflon, a chemically inert heat-resistant anti-hesive packing material with a design that gives solid mechanical resiliency, permitting a tight seal at low gland pressure. Packing is supplied as a series of V-shaped rings. Under compression in the stuffing box, each ring acts as a wedge, forcing the lips of the next ring tightly against spindle and stuffing box. Sealing action derives partly from flexing of the rings, and does not depend entirely on deformation.

Teflon Products Div, United States Gasket Co, PO Box 93, Camden, N. J.

WATER-LEVEL GASKET P218

Improved gasket is coated with special compound that prevents it adhering to gage metal surfaces under high pressure and high temperature. When glasses or gaskets of high pressure water-level gages are replaced, the *Frelon* gasket, a molded pressure sealed design, is in the groove of the gage insert body. Result is an improvement in water-gage maintenance.

Yarnall-Waring Co, Mermaid Lane, Philadelphia 18, Pa.

PACKING P114

Chemically inert, heat-resistant, tough, durable packings and gaskets can be had with *Teflon*. This material operates at temperatures from below -90 F to 500 F with high mechanical strength and low coefficient of friction.

Garlock Packing Co, Palmyra, N.Y.

MULTIPURPOSE GREASE P239

Oxidation inhibited *Cosmolube* is suitable for about all types of installations—wet, dry or cold. This one grease follows the general trend throughout the industry of providing one grease that does many jobs.

E F Houghton & Co, 303 W Lehigh Ave, Philadelphia 33, Pa.

FLOOR HARDENER P1071

Flintcrust Liquid consists of crystals dissolved in water. It is flushed over concrete floors to fill the pores, forming a hardened, glasslike surface. Result is a floor that is essentially maintenance-free for years.

Flexrock Co, Filbert and Cuthbert St, Philadelphia 4, Pa.

TIN SOLDER P501

Tin solder ST-30 (30% tin) performs as well as commonly used 50% tin—50% lead, or 40% tin—60% lead solder. Same fluxes apply as used before and methods of handling are identical. The ST solders require slightly more heat to melt, but too much heat is not as harmful as with the usual tin-lead solder.

Federated Metals Div, American Smelting & Refining Co, 120 Broadway, New York, N. Y.

PROTECTIVE PAINT P514

Addition of silicones to *Chem-Rem* acid and alkali-resisting black paint is said to improve paint luster and provide smoother coverage with greater acid resistance, plus increased water repellance. *Chem-Rem* is suitable for both interior and exterior use on metal, masonry or wood. It can be applied by brush, spray or dip method. Its finish dries to the touch in one hour and sets in three.

Speco, Inc, 7308 Associate Ave, Cleveland 9, Ohio.

PLASTIC COATING P521

Air-drying, plastic protective coating protects tanks, tank cars, pipes, fittings, structural-steel parts against attack by splash, drip and spray from corrosive chemicals, atmospheres, and from weathering or rust. Plastic *U. S. Royalguard* combines high film flexibility with good adhesion and impact resistance. It can be used on steel, aluminum, concrete, hard wood or composition board, allowing one hour for drying between coats and 24-hr drying after final coat.

United States Rubber Co, Rockefeller Center, New York 20, N. Y.

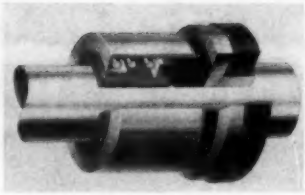
FLOOR PATCHING P506

A finer aggregate added to *Armor*, a dry cementatious powder made of pulverized

pure-oxidizing metal grains and four different kinds of aggregates, chemicals, and pozzuolanic ingredients, makes a highly effective over-all floor resurfacer. It is shipped as a dry powder; simply adding water to it makes the necessary mixture consistency for application like concrete to floor surfaces.
The Monroe Co, Inc, Cleveland 6, Ohio.

PLASTIC PACKING P1031
Securely vulcanized tape-back has been made an integral part of *Super-Seal* plastic packing. It increases packing flexibility and now brings plastic packing into easy-to-handle class of ordinary braided fabric. Ring cutting is greatly simplified.
Crane Packing Co, Dept Q-22, 1800 Cuyler Avenue, Chicago 13, Ill.

PROTECTIVE COATING P505
Ceramic coating, *Elkote*, for metals and alloys provide a protective barrier against corrosion and oxidation at temperatures up to 2400 F. It adheres firmly to metals of widely different coefficients of expansion, even under flexing, percussion, vibrations, and sudden temperature changes.
Elraco Engineer Co, 158-14th St, Hoboken, N. J.



MECHANICAL SEALS P420
Where leakless operation of a rotary shaft on a pump or other equipment is required, a good mechanical seal will do the job. Sealing is obtained by positive contact between carefully lapped metal-to-carbon or metal-to-metal mating surfaces. One of these elements rotates with the shaft and the other is stationary. The stationary element does not contact the shaft so one does not wear the other.
Garlock Packing Co, Palmyra, N. Y.

PIPE COATING P611
Asbestos-fiber coating, the gilsonite asphalt base, has been developed expressly for use wherever corrosion from soil acids or air-suspended acids attack metal structures for pipelines. It is made up as *Pro-Tek-To* pipe coating and requires no heating, special mixing, or preparation for application.
Warren Refining & Chemical Co, 750 Prospect Ave, Cleveland 15, Ohio.

MECHANICAL PACKING P408
Highly resistant chemical packing for tough and demanding conditions, such as you meet in sulfurous, chromic, nitric, and in fact all acids, caustics or alkalies, results from a packing material called *Blu-Lon* made of 100% pure tape African blue asbestos entirely free of spinning-cotton content. This asbestos is immunized by Teflon *Suspensoid*.
A W Chesterton Co, Everett 49, Mass.

PACKING LUBRICATION P695
The "hole" which runs through the center of Ovalhole Hollow Center Packing is a storage space for packing lubricant. It is said that by filling the hole with lubricant before installing the packing in the stuffing box, sufficient lubrication is provided to make the packing self lubricating. When the gland is pulled up, a spot of grease is forced out on the rod from each ring of packing throughout the entire length of the stuffing box.
The Hollow Center Packing Co, 6523 Euclid Ave, Cleveland 3, Ohio.

MATERIALS HANDLING } Items about conveyors, feeders, hoists, lift trucks, vibrators, and similar equipment

ELEVATOR BUCKETS P208
Cast integrally with a single link of chain, buckets on elevator cannot loosen and fall off. They are easy to replace, costing no more than a bucket with single link of chain. There are no raised surfaces or projecting bolt heads on inside of bucket to retard discharge of material. It is made in five sizes, 8x5, 10x6, 12x7, 14x7 and 16x8 in. Other sizes can be furnished to meet requirements.
Beaumont Birch Co, 1505 Race St, Philadelphia 2, Pa.

RAYON-CORD LEATHER BELT P210
Flat leather belting consists of a layer of rayon tire cords cemented between two layers of leather belting. It has low stretch and can be scarfed and made endless with the same ease and methods as any other flat leather belt. Regular belt fasteners or lacing can also be used in the customary manner. It has the same degree of salvage-ability as ordinary belting and can be handled in the same way.
Chas A Schieren Co, 30 Ferry St, New York, N. Y.

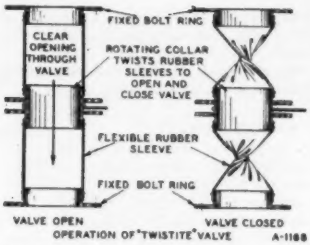
LIFT-TRUCK SCOOP P211
Hydraulic scoop picks up, transports and dumps bulk materials such as coal, sand, cement, scrap, etc. Actuated by a 2-way hydraulic cylinder, the scoop has fingertip control with the lift truck's mast in vertical position. The hydraulic scoop will tip 45 deg foward for dumping the load and 30 deg backward for carrying it.
Towmotor Corp, 1226 East 152nd St, Cleveland 10, Ohio.

DUST-TIGHT FEEDERS P212
Heavy-duty vibratory feeders have their working parts, leaf springs, armature and core covered by gasket-sealed plates bolted to the magnet casting to make them dust-proof. Enclosing these parts protects against clogging by hopper spillage or heavy dust conditions and makes the feeder suitable for Class 2 group installations.
Syntron Co, 492 Lexington Ave, Homer City, Pa.

NEOPRENE BELTING P202
Belt is designed for light conveying and transmission work and adapted to the sanitary requirements of the food industry. It is made in either white or brown. Both types have a smooth neoprene cover on one side and are made in two thicknesses, in any width up to 48 in. They are oil-proof, waterproof, odorless, tasteless, non-toxic, washable, heat resistant, acid and alkaline resistant and can be vulcanized endless.
Baldwin Belting, Inc, 74-76 Murray St, New York 7, N. Y.

LIQUID-HANDLING P518
Easy-pour tilter, GS No. 15, provides a safe and easy method of pouring highly acid or alkaline liquids from cans into small containers. It has a cradle of steel that fits any standard-size gallon can. All members are riveted or welded. It is ideal for making up different chemical mixes to be applied in small doses for various power-plant services.
General Scientific Equipment Co, 2700 W Huntingdon St, Philadelphia 32, Pa.

BIN VALVE P411
Twistite double-closure bin valve has two rubber sleeves joined by a rotating steel collar. Dust- and drip-tight closure obtained by pulling on cable wrapped around rotating collar. Valve is self opening; elasticity makes rubber sleeves resume cylin-



drical shape as soon as cable tension is released. Sleeves wrap around lumps, prevent leakage. Local or remote hand control can be used for valve. Small actuating motor gives automatic control. Standard 6-in. valve weighs 35 lb, handles lump sizes up to 2½ in.; other valve sizes available on request.
Stephens-Adamson Mfg Co, Aurora, Ill.

BIN AND HOPPER VIBRATOR P330

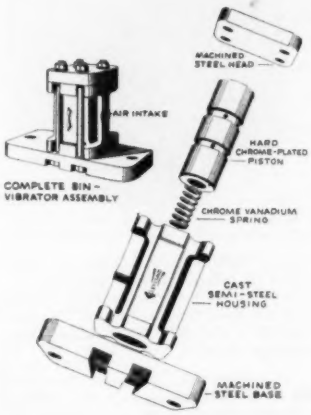
Quiet Type vibrator, style EM, is designed specially for bins, hoppers, chutes, shakeouts and other jobs. Features heavy pistons and long strokes. Available in 1⅝- to 4-in. sizes, interchangeable with any bolt-type vibrator.
Cannon Vibrator Co, 1108 Power Ave, Cleveland 14, Ohio.

ELECTRIC CABLE HOIST P336

These heavy-duty hoists, built in ½- to 5-ton capacities, have motor enclosed in the cable drum to reduce weight and dimensions. Motor being enclosed in drum protects it against moisture, splashing liquids, weather, dust and corrosive atmospheres. Load hook oscillates on ball-bearings and swivels on roller bearings and is suspended on a 5/16-in. plow-steel cable.
Cleveland Chain & Mfg Co, Broadway & Henry St, Cleveland 5, Ohio

ROLLER HOLDBACK P214

A normal-duty roller-type holdback is designed to prevent reversal of inclined conveyors and bucket elevators when power is interrupted. A hardened steel roller floats between a wedge plate and a drum keyed to the head shaft. When direction of rotation of head shaft starts to reverse, because of power failure, the hardened steel roller is immediately wedged between the drum and the plate to stop motion gently and without shock. When power is reapplied the holdback releases immediately.
Stephens-Adamson Mfg Co, Aurora, Ill.



AIR-OPERATED VIBRATOR P1132

Type F vibrator is designed to move cinders, coal, sand, gravel, cement and other materials in fine or lump state that plug or arch in chutes, hoppers, bins, screens or storage tanks. Vibrator assembly is held together with 4 longitudinal body bolts and stop-lock nuts. Five parts are used—mounting base plate, housing, spring, piston and head.
The Cleveland Vibrator Co, 2824 Clinton Ave, Cleveland, Ohio.

CAR SHAKER P122

Lightweight 1250-lb car shaker unloads 50-ton hopper-bottom railroad car in 4 to 7 min. Unit moves equally well with coal, sand, crushed stone, cement. Vibration is produced by a motor-powered cam-shaking mechanism. Shaker may be furnished with either a wheel cart, a jib crane or an overhead mono-rail for mounting the shaker to the car. One man can attach unit.
National Conveyor & Supply Co, 346 N. Harding Ave, Chicago 24, Ill.

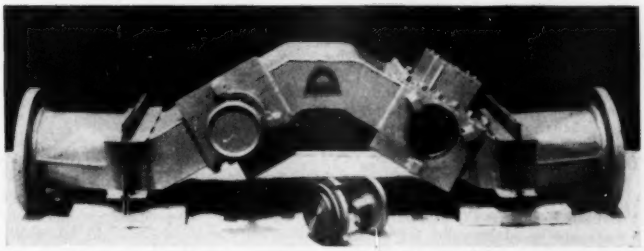
SAVE YOURSELF TIME

Use cards on page 175

ELECTRIC VIBRATORS P447

Semi-noiseless vibrators for bin, hopper and chute perform the same function as the standard models, with a sharp reduction in the operating noise. They are especially useful on interior bins, hoppers and chutes where large numbers of employes are working.

Units are available in four models, with capacities ranging for use on small hoppers containing as little as 20 cubic feet of material to bunkers holding hundreds of tons for operation from 110- or 220-v ac.
Syntron Co, 492 Lexington Ave, Homer City, Pa.

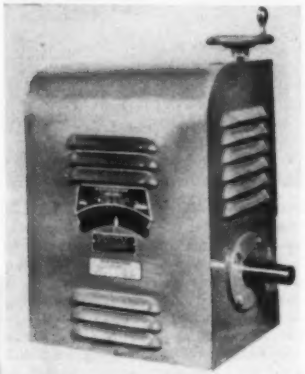


MAGNET SEPARATOR P205

Pressure-tight nonelectric magnetic separator removes stray iron from liquids, slurries, and slips flowing in pipelines, 6 to 20 in. in diameter. It prevents tramp iron damage to refiner processing equipment, pumps and grinders. Performs satisfactorily with material flows of 50 to 250 cfm and at pressures up to 45 psi.
Eriez Manufacturing Co, Erie, Pa.

MECHANICAL TRANSMISSION:

Speed changers, clutches, bearings, couplings, and related equipment



VARIABLE-SPEED UNIT P139

Tandem-belt design forms basis for this new line, the *Allspeed Drive*. Units, from 1- to 15-hp, offer speed variation up to 16 to 1. At 1725-rpm input, 1-hp unit offers range of 215 to 3450 rpm; output speed of the 15-hp unit will vary from 370- to 2220-rpm with an input speed of 1750-rpm

Worthington Pump and Machinery Corp, Allspeed Drive Div, Holyoke, Mass.

CENTRIFUGAL GOVERNOR P213

Made primarily for belt drive, the governor can be adapted for gear operations and may be supplied with or without a speed-control lever operated from the dash. Ball-bearing throttle boxes are supplied where necessary.

Hoof Products Co, 6543 S Laramie St, Chicago 38, Ill.

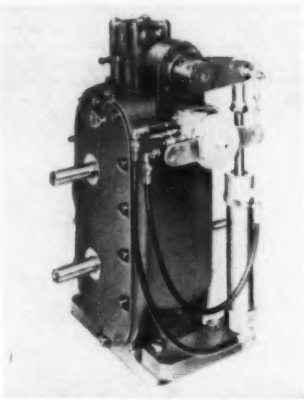
FLEXIBLE COUPLING P335

For motors up to ½ hp, neoprene element flexible coupling reduces operating noises, absorbs torsional vibration, accommodates large shaft misalignment. Oil-resistant neoprene is bonded between two flanged hubs to form a one-piece design. Die-formed hubs are drawn with a flat on one side to form a D-shaped bore. This bore fits onto a milled flat on motor and driven shafts so keyway, pins or setscrews are not needed.

Lord Manufacturing Co, Erie, Pa.

VARIABLE-SPEED CONTROL P857

Automatic speed controller for variable-speed transmission is available in four types: electronic, hydraulic, pneumatic and mechanical. They are used to: (1) keep separate machines in synchronism (2) drive beams, feed rolls, take-ups and pay-off reels at changing infinitely variable speeds



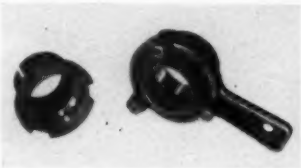
to keep constant tension (3) time operating cycles of different lengths precisely (4) hold to narrow limits temperature, velocity pressure, liquid levels and flow of materials.

Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill.

BALL BEARING P337

Sealed without mechanical contact between its stationary and rotating members, ball bearing combines the advantages of a sealed type with the rotating freedom of an open bearing. It has a capillary chamber formed by the cylindrical extruded section of the inner cover and the tapered section of the inner race. At that point a capillary oil film seals the bearing. Available in bore size of 3 mm (0.1181 in.) to 8 mm (0.3150 in.). Corresponding outside diameters are 10 mm (0.3934 in.) and 22 min (0.8661 in.)

Landis & Gyr, 104-5th Ave, New York 11, N. Y.



COUPLING UNIT P303

Two-piece self-positioning quick-coupling unit opens and closes with less than a quarter turn in less than a second. It consists of a body with three tapered locking lugs and mating male or female tailpiece or hose spud in sizes ranging from ½ to 6 in., inclusive. Standard couplings take up to 150 psig and high-pressure models are available for pressures in excess of 2000 psig. The coupling handles gas or fluid.

Mead Cornell & Co, PO Box 2682, Cleveland 7, Ohio.

CLUTCH BRAKE P338

Air-powered combination fraction clutch and brake unit drives medium and heavy machinery. Brake shoe and lining assemblies can be easily changed. Clutch disk scoring stopped because rivet heads cannot come in contact with disks. Disks are bolted in place and actuating mechanism is so designed that linings are pulled from contact with the disks.

Brake and clutch cannot be engaged at same time.

Power Presses, Inc, 615 Penton Bldg, Cleveland 13, Ohio.

AUTOMATIC CLUTCH P334

Centrifugal clutch coupling constructed so it can be lifted vertically from its mountings on driving and driven elements without disturbing them. The driving spider slides back over the driving hub far enough to clear the driven half of the coupling, to permit either member to be lifted clear of the other. Couplings are available for either standard shoes or spring-controlled shoes in 6x2-in. to 24x8-in. sizes.

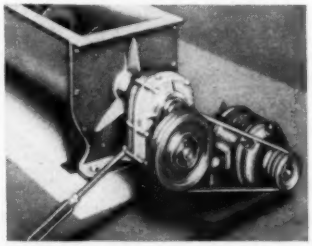
Centric Clutch Co, 22-26 South Ave, West Cranford, N. J.

VARIABLE-SPEED UNIT P540

Heavy-duty motors for variable speed with ratings as high as 50 hp is part of the company's *Varidrive* line. To carry the heavy load through the internal speed-changing transmission, dual belts are used.

A calibrated spring maintains pressure between the two halves of the driven vari-disks and the sides of the belt. Spring takes up any slack that might be caused by stretch or wear of belts.

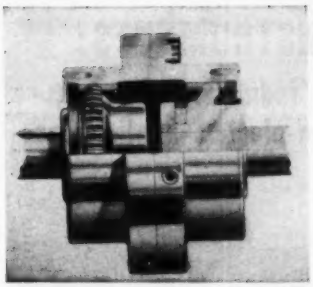
U.S. Electrical Motors, Inc, 200 E Slauson Ave, Los Angeles 54, Calif, or Milford, Conn.



SPEED REDUCER P207

A torque-arm reducer for output of 115 to 330 rpm is made in four sizes for capacities up to 27 hp. It can be mounted on the driven shaft to eliminate special engineering, cost of foundation, flexible coupling, sliding base, and lining up.

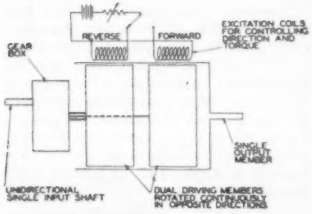
Dodge Mfg Corp, Mishawaka, Ind.



FLEXIBLE COUPLING P1245

Dihedral coupling is designed to handle angular and offset misalignment up to 7 deg; special models can handle up to 12 deg. Misalignment capacity is based on tooth shape. Coupling eliminates most alignment problems caused by normal bearing wear, and settling foundations. Bulletin 50 gives further details.

Ajax Flexible Coupling Co, Inc, Westfield, N. Y.



MAGNETIC-PARTICLE CLUTCH NOW REVERSIBLE P137

Reversing *Magneclutch* has two driving members and but one driven member. Fed from a gearbox, the two driving members are the input to the two magnetic-particle clutches; they rotate continuously in opposite directions. By energizing the proper excitation coils in the clutch mechanism, rotation direction of the output shaft is determined.

Vickers Electric Div, Vickers Inc, 1815 Locust St, St. Louis 3, Mo.

VARIABLE-SPEED PULLEY P631

To be mounted on the shafts of motors up to 15 hp, these pulleys give a 3-to-1 speed range. They use a standard varispeed rubber V-belt. A rack and gear arrangement controls sheave movement and holds belt alignment over the pulley's speed range. Catalog No. RC1300-150.

Gerbing Manufacturing Corp, 11801 Milwaukee Ave, Northbrook, Ill.

SPEED REDUCER P644

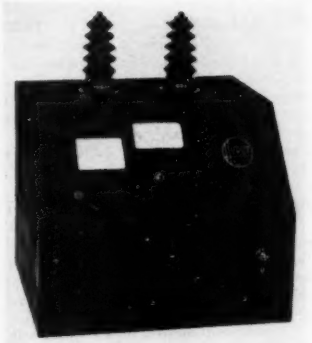
Type DB double-reduction speed reducers, in ratings from 1 to 100 hp, designed for applications on small- to medium-size drives where the prime mover is coupled or belted to the gear unit.

These speed reducers use all-external type helical gearing, arranged in a horizontal plane.

Westinghouse Electric Corp, Box 2099, Pittsburgh 30, Pa.

ELECTRICAL METERS:

Watt and volt-meters, testers and all types of electrical instruments



HIGH-VOLTAGE TESTER P828

Semi-portable *Hypot* insulation breakdown testing equipment with test-voltage ranges up to 30 kv, ac, with capacities to 1.65 kva. High-voltage output is controlled by a simple pushbutton in the transformer primary, and output is variable from zero to maximum. Breakdown or short circuit in equipment being tested will trip a high voltage cutout.

Associated Research, Inc., 3755 W. Belmont Ave, Chicago 18, Ill.

MEGOHMMETER P746

Small 7½ x 4 x 4-in., 4-lb 14-oz *Megohmer*, the *Major*, gives constant-pressure test voltage for high- and low-resistance measurements. Unit has an auxiliary ohm scale, 0-30 ohms, down to ½ of 1 ohm, or 0-10,000 ohms reading down to 1 ohm per division.

Herman H Sticht Co, Inc, 27 Park Place, New York, N. Y.

LEAK DETECTOR P767

Suitable for detecting leaks of methyl chloride, dichlorodifluoromethane, methylene chloride, carbon tetrachloride, trichlorethylene, etc. Unit uses a photoelectric photometer to indicate changes in intensity of the blue spectrum of a copper arc discharge in the presence of organic halide vapors. Instrument is accurate to within 10%.

Davis Emergency Equipment Co, Inc, 45 Halleck St, Newark, N. J.

GAS BURNER SAFEGUARD P950

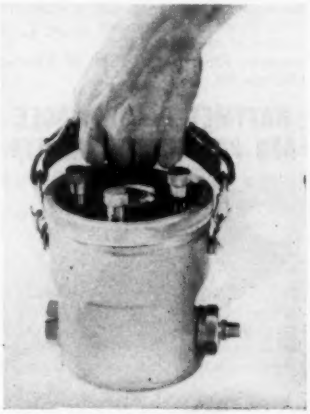
Electronic flame-failure protection and semi-automatic ignition control can be had for commercial and industrial gas-burning with the Fireye System *FF-C*. It includes a flame rod, Type 45 JQ1, and a control. Flame rod mounts near gas pilot on burner plate and projects into flame. When flame fails, rod signals control and fuel is cut off.

Combustion Control Corp, 77 Broadway, Cambridge 42, Mass.

LONG-SCALE INSTRUMENTS P142

This line of 8¾-in. instruments are designated as types AB-16 (ac) and DB-16 (dc). They have 250-deg scales which are 14.2 in. long.

General Electric Co, Schenectady, N. Y.



EXPLOSIONPROOF METER P425

Portable, 6-lb, 5½-in.-dia, 6½-in.-high gas-detecting meter permits analyzing gas lines for leaks at any point in the line.

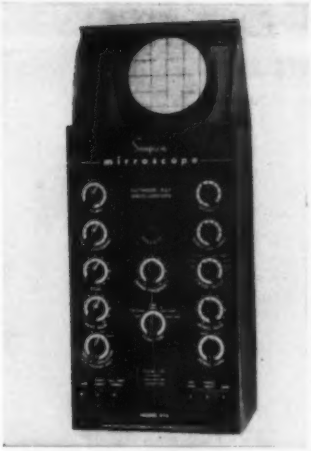
Lor-Ann Instrument Co, Jersey City, N. J.

ELECTRIC TACHOMETER P533

Device for use with this company's variable-speed transmission and varispeed motor drives, when they must be mounted in inaccessible or remote locations.

This electric tachometer, operating on ac generator principle, allows more flexibility in installation, since indicator may be mounted as far as 300 ft from the variable-speed drive.

Reeves Pulley Co, Columbus, Ind.



OSCILLOSCOPE **P446**

Model 476 *Mirroscope* is designed to save space on the test bench. The 5-in. cathode-ray tube is mounted in a vertical position. This construction reduces bench requirements to an area of only 9x8 in.

Cathode-ray image is reflected from a high-grade mirror mounted in the adjustable cover at the top of the cabinet. Thus the viewing surface is brought near the eye level when the instrument is used on benches of normal height.

Simpson Electric Co, 2500 W Kinzie, Chicago, Ill.

WATTMETER FOR SINGLE AND POLYPHASE CIRCUITS

P700 • Known as Type AK-2, this new instrument allows taking measurements without interrupting service. Similar in appearance to the conventional clamp-on ammeter, it makes use of a magnetic hook to surround the current-carrying conductor. Potential leads are connected as in a conventional single-phase wattmeter. This wattmeter with its simple switching direct-reading scale is introduced as a companion unit to the AK-1.

GE Co, Schenectady 5, N. Y.

METERS AND INSTRUMENTS:

Mechanical recorders, indicators for pressure flow and other non-electric applications

PEN RECORDER **P320**

Speedomax 2-pen electronic unit records two functions simultaneously against time. The two separate electronically-amplified measuring circuits, two balancing motors and two recording pens are all housed in one *Speedomax* case.

Leeds & Northrup Co, 4934 Stenton Ave, Philadelphia 44, Pa.

ELECTRONIC HYGROMETER **P237**

Direct, relative-humidity readings without the use of psychrometric charts and for remote locations (up to 1000 ft) are now possible with an electronic hygrometer that employs a sensing element about the size of a matchbook cover as its heart.

The element consists of a clear, plastic base on which are mounted electrodes that look like the teeth of a comb. These electrodes are pure leaf gold pressed onto the plastic base and separated from each other about like the teeth of two interlocked combs. Entire element is coated with a thin solution of chemical salts.

Minneapolis-Honeywell Regulator Co, Wayne and Roberts Ave, Phila., Pa.

TROUBLE SIGNAL **P242**

A back-lighted multiple-unit signal that's suitable as a trouble signal in process industries and power plants. Device is hermetically sealed conforming to Code regulations for Class 1, Division 2 specifications. Signal lights and relay are combined in a single sealed container. Unit plugs into a universal chassis.

Panalarm Products Co, 7218 N. Clark Street, Chicago 26, Ill.

DISPLACEMENT METER **P302**

High-capacity positive-displacement meter, capable of handling gas at pressures up to 1000 psi permits accurate metering over wide ranges of gas at the takeoff point. The new meter—the No. 2½ Rockwell meant for 1000-psi working pressure—weighs 950 lb, is encased in a high-tensile alloy casting with 1¼-in. studs joining body and cover.

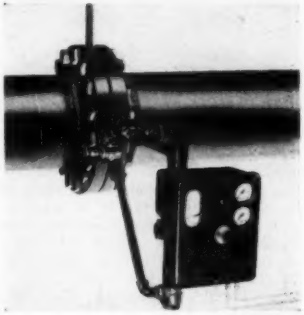
Meter has capacities of 31,000 and 46,000 cfh of gas on a 4-oz basis at pressure drops of 6- and 7-in. hg. This is said to be the first time diaphragm-type meters have been made usable above 500 psi.

Rockwell Mfg Co, Valve & Meter Div Pittsburgh, Pa.

TEMPERATURE INDICATOR **P125**

Thermocouple-actuated temperature indicator, the *Microsen*, combines advantages of full-scale circular dial, power-driven pointer and *Microsen* balance. Adjustable calibrating resistor is part of the thermocouple circuit. Further, a replaceable reference junction permits calibration change to other thermocouple materials.

Manning, Maxwell & Moore, Inc, Bridgeport 2, Conn.



FLOW INDICATOR **P216**

Combining the advantages of the area meter and the orifice meter, company's new *VA cell* is a precision-flow transmitter developed for differential pressure applications. It measures a by-pass portion of the main line and is basically a through-flow instrument. Continuous self-purging is thus provided. It features high accuracy with wide-range linear scale.

Fischer & Porter Co, 42 County Line Road, Hatboro, Pa.

TACHOMETER **P1270**

Single-range-type hand tachometer, Model JP, has a 3-inch longrange 400-4800-rpm dial with plastic lens.

Herman H Sticht Co, Inc, 27 Park Place, New York 7, N. Y.

FLUID METERING **P921**

Differential pressure producer consists of a flow tube having a short spool piece with an inner sleeve that is equipped with two groups of pressure nozzles. One set points upstream, the other downstream.

With the flow tube, differential produced is always a power of velocity and therefore can always accurately measure flow when used with properly calibrated conventional recording, indicating, integrating or control instruments.

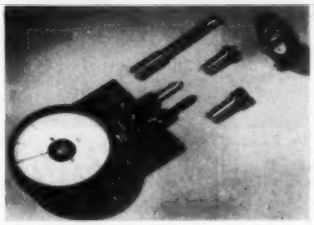
Foster Engineering Co, Union, N. J.

RECORDER **P437**

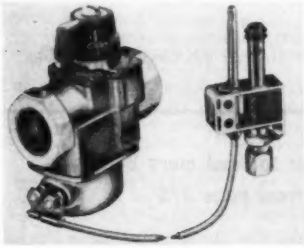
Range is continuously adjustable over a 20:1 ratio. Zero suppression is adjustable over more than twice the maximum range. Through use of a particular suppressed zero range an operator can ignore that portion of the range he is not interested in. At the same time he can spread the few millivolts he wants to watch across the entire width of the instrument chart. Adjustable range permits user to select his own scale calibration at will.

Typical measurements include: (1) Measurements with strain gages for experimental stress analysis, weighing operations, etc. Adjustable zero compensates for tare

weight. (2) Temperature difference measurements with thermocouples in measuring small temperature changes at high temperatures. (3) Speed measurements using an electric tachometer as the primary element. This recorder can measure change of speed over a narrow range or assist in the study of speed regulation characteristics of motors, engine governors, etc.
Leeds & Northrup Co, 4934 Stenton Ave, Philadelphia 44, Pa.



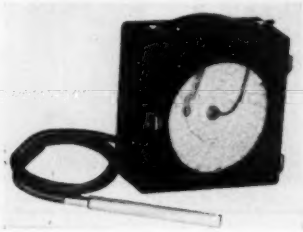
HAND TACHOMETER P108
Dual-range hand tachometer, *Smith's Model ATH 10*, features low torque, 0.40 in.-lb on lowest range. Ranges are 0 to 1000 rpm and 0 to 5000, each printed on the dial in a contrasting color.
Equipoise Controls, Inc, 100 Stevens Ave, Mount Vernon, N.Y.



SAFETY CONTROL P230
A combination of the 260 Series pilot burner and a new MR-5, ¾-in. gas cock safety valve includes a 100% safety shut-off feature for pilot-flame failure, a removable filter screen to eliminate lint plugging.
General Controls Co, 801 Allen Ave, Glendale 1, Calif.

TACHOMETER P1079
Type 25D hand tachometer with speed ranges of 100-1000, 200-2000, and 500-5000 rpm and fpm. Additional ranges of 10-100, 20-200, and 50-500 fpm are also available. Range-extending adapters are available to measure speeds down to 20 rpm and as high as 50,000 rpm, for special applications.
Metron Instrument Co, 432 Lincoln St, Denver 9, Colo.

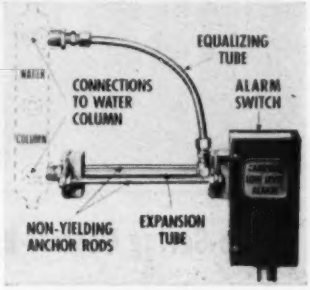
STANDARD CELL P532
Electronic standard cell for industrial and laboratory use provides a dc reference voltage, stable to 0.25%. Output ripple on the low-current models is less than 0.01%.
Unit is for use with self-balancing potentiometers, wire strain gages, recording oscillographs, resistance thermometers, and other applications requiring a stable dc source.
Hastings Instrument Co, Inc, Hampton, Va.



RECORDING THERMOMETER P1114
Self-contained recording thermometer *Minicorder*, needs no outside power supply; can record without attention for up to seven days. Special shockproof mechanism permits mounting it in trucks, trailers, railway refrigerated cars and ships. Temperature ranges in various models cover from −30 to +165 F.
Tagliabue Instr Div, Box 414, Weston Electrical Instrument Corp, 614 Frelinghuysen Ave, Newark 5, N. J.

RECORDER MEASURES ROTOR TEMPERATURE P448
An electronic recorder for accurately and quickly measuring temperature of the rotor in large electric generators. Temperature measurement of the rotating field is of interest because overheating or too rapid cooling can result in costly generator damage. For most economical operation, generators are operated at or near maximum capacity. And since the dc excitation current increases as the load increases, field temperature rises with a rise in load.
Measurement of rotor temperature enables operator to avoid overloads. In addition, a continuous record of the temperature serves as a guide in cooling a generator that has been taken off the line—the field current is reduced gradually to provide a slow cooling rate. This *ElectroniK* instrument provides a continuous record of rotor temperature on a 12-in. strip chart. Recorder is the same in appearance as Brown's standard instruments and the continuous balance system is retained.
This instrument is essentially a resistance thermometer that infers the temperature of the rotor winding from the measurement of its resistance. Fuses are incorporated in all circuits that connect to the user's equipment to prevent damage to the equipment or to the instrument in a short circuit or component failure.
Minneapolis-Honeywell Regulator Co, Brown Instruments Div, Wayne & Roberts Aves, Philadelphia 44, Pa.

PYROMETER EQUIPMENT P323
Designed for industrial applications that include heat-treating furnaces, brick, cement or ceramic kilns, the instrument has a calibrated accuracy within 0.75% of full scale. Indicating device is a millivoltmeter that is connected to a thermocouple on the furnace or other heating equipment.
General Electric Co, Schenectady 5, N. Y.



BOILER ALARMS P927
In average boiler there is around 100-F difference between boiler saturated steam temperature and water in the water column. This fact is put to work in this company's *Micro-Thermal* low-level boiler-water alarm. A special equalizing tube reacts to temperature changes to set low-level alarm in operation.
J A Campbell Co, 645 E Wardlow Rd, Long Beach 7, Cal.

TELL ME MORE!

We'll ask the maker to send details. Just fill out cards on page 175.

TACHOMETER P639
U. S. Varidrive motors are now available with Model R-1 tachometer and generator in ratings from ¼ to 50 hp and speeds from 2 to 10,000 rpm. Tachometer indicator is entirely enclosed to prevent entrance of dust and other foreign particles. It can be mounted at distances up to 300 ft from the *Varidrive* without affecting accuracy.
U.S. Electrical Motors, Inc, 200 East Slauson Ave, Los Angeles 54, Calif.

LOW-TEMPERATURE GAGES P622
Nonfrosting large-chamber gages are suited for low-temperature ammonia, Freon, propane, ethylene, and other services where low-temperature fluids must be gaged. Gage-glass extension prevents frost forming over vision slot, permitting quick, accurate level reading. Series RLF-10 is reflex; series TLF is transparent. Larger area at the meniscus reduces turbulence. Entire gage, except outer surfaces of nonfrosting window extension, may be insulated.
Jerguson Gage & Valve Co, 80 Fellsway, Somerville 45, Mass.

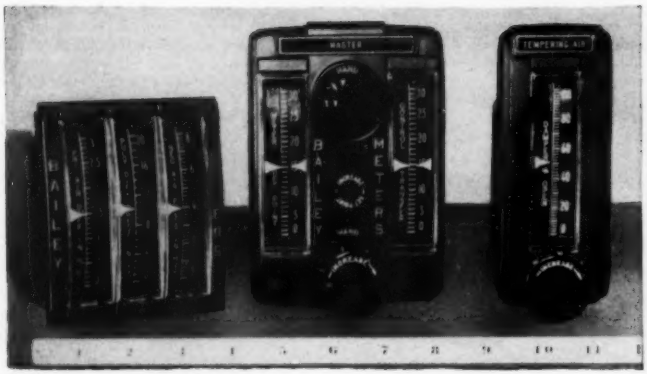


Fig. 1

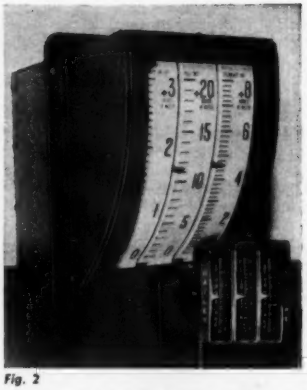


Fig. 2

Space-Saving Control-Room Instruments Permit 50% Smaller Benchboard

P600 • As power and process plants have grown larger and more complex the necessary metering and controls have increased. The centralized control board represents an essential step in keeping process controls and indicating devices within reasonable operation. Now comes a notable advance in the form of miniature indicators and controls, Fig. 1, called the *Mini-Line* which cut space requirements by more than half.

These instruments include a multipoint indicator, Fig. 1 and 2, which uses 87% less panel space, a selector valve, Fig. 1, requiring 52% less space and a remote manual relay, Fig. 1, taking up 72% less space.

Recommended mounting for these instruments is a console-type centralized panelboard wherever possible, so space savings can be to full advantages in a compact assembly. A 3-unit multipoint indicator measures only 4¼ in. wide and 4⅜ in. high, compared to the standard-size instruments of 10⅞ in. on a side.

The *Mini-Line* selector valve (4½x6¼ in.), suitable for remote manual or automatic operation of air-operated controls, differs from the standard in more than size. It has no reset position for transfer between remote manual and automatic control. Changes can be made instantaneously without disturbing the controlled factor. Two vertical-scale units in the faceplate of the new selector valve provide information for all switching and adjusting operations.

The *Mini-Line* selector valve (4½x6¼ in.), suitable for remote valve, above, 2⅝x6¼ in., gives a control over those factors needing only occasional adjustment rather than automatic control.

Bailey Meter Co, 1050 Ivanhoe Rd, Cleveland 10, Ohio.

PIPING VALVES FITTINGS AND ACCESSORIES

We'll ask the manufacturer to send more details send us the cards from page 175

FULL-FLOW VALVE P984

Full-throttling, full-flow globe valve has high disk lift and large flow areas above and below seats. Turbulence and pressure drop through valve are low. Renewable, regrindable cone-shaped seats and disks are stainless steel hardened to about 500 Brinell. Valves available with screwed ends in sizes from ⅛ to 3-in.

The Wm. Powell Co, 2503-31 Spring Grove Ave, Cincinnati 22, Ohio.

PROPORTIONING VALVE P895

Using a slide which moves across a rectangular opening this control valve is suitable for equipment and pipes which need straight-line flow characteristics with minimum pressure drop and turbulence. Flow is directly proportional to area open in valve. Opening can be designed to conform to any geometric figure.

W S Rockwell Co, 200 Eliot St, Fairfield, Conn.

CONTROL VALVES P1039

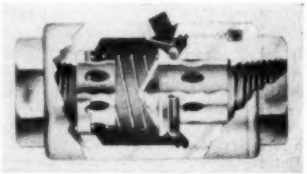
Adapted to confined spaces where ordinary control valves would not fit, these piston-operated units can control low-pressure steam or hot or cold water. They are available in ½- and ¾-in. pipe sizes with union-angle and union-globe patterns, reverse flow, double-union angle and female-union inlet-globe bodies.

Johnson Service Co, 507 E Michigan St, Milwaukee 2, Wis.

SANITARY HYDRANT P604

Sanitary, nonfreezing, all-weather hydrant has no seep holes. Thus it avoids any danger from ground contamination, and functions properly at static water pressures ranging from 25 to 130 psi and from temperatures extending from + 100 to — 70 F. A special rubber sleeve enclosed in the casing breaks up any frozen water inside the casing during freezing weather and thus insures operation. A cup-type rubber-seat washer is employed for positive pressure closure and a low friction between seating parts. Hydrants are available in ¾- and 1-in. sizes and for 2-, 3-, 4-, 5-, 6-, 7-, 8- or 9-ft depths.

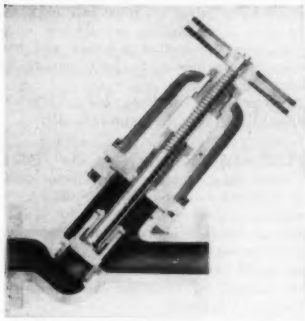
J A Zurn Mfg Co, Erie, Pa.



CIRCLE-SEAL CHECK VALVE P203

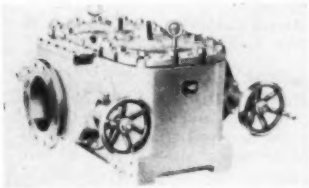
Check valve uses synthetic-rubber O-ring to seal between conical surfaces on the poppet and valve housing. As line pressure on the outside of the O-ring increases, it increases the sealing pressure. The O-ring seals only the valve, the poppet

being carried by a metal shoulder in the valve housing. When open, fluid flows around the streamlined poppet, giving the valve good flow characteristics and low pressure drop. The spring retainer, which serves as a poppet stop, has ample ports of full flow even under surge conditions.
John-Pond-Clark, Pasadena, Calif.



BOILER BLOWOFF VALVES P247
Straightway Y-type boiler blowoff valve is available in 1½-, 2- and 2½-in. sizes in cast iron or cast steel for pressures up to and including 600 psi. Head or disk is made of H monel and seat is monel. Renewable seat has upper and lower sealing gaskets to protect seat threads from corrosion.
Everlasting Valve Co, Dept 42, 49 Fisk St, Jersey City, N. J.

THREADLESS FITTING P741
Threadless steel fittings with soft-metal seals for use with ½- to 1½-in. pipe in tees, couplings, elbows, enable rigid connections of black or galvanized pipe without threading pipe ends. To break into an existing line just cut it with a hack saw, part it a half inch, slip on a threadless fitting and tighten the seal nuts. Connection is said to withstand up to 2000 psi.
Union Products Co, 54 South Third St, Minneapolis, Minn.

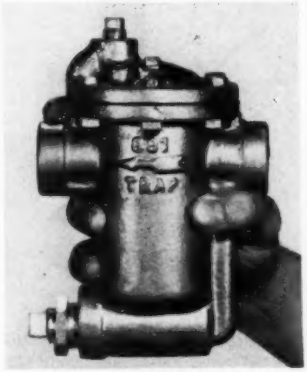


DUPLEX STRAINERS P101
Angle design applied to multiple-catch baskets permits straight-through flow with low pressure drop and high flow rates in gate-type duplex strainers. When baskets are 90% blocked, pressure drop, measured with water at room temperature, increases 44%. Units, in 8-, 10-, 12-, 14-, 16-, 20- and 24-in. sizes, handle flow rates from 400 to 15,000 gpm.
J A Zurn Mfg Co, Erie, Pa.

HYDRAULIC-MOTOR VALVE FOR OPEN-SHUT CONTROL P1133
Sarcostat is designed for automatic operation by thermostats, pressurestats, liquid-level or flow controls and permits open-and-shut control of gases and liquids. Valve is constructed to handle steam, water, oil, gas, air and other common substances. Electrical supply is 110-v ac, 60 cycles. Valve is normally closed, being opened by the valve operator actuated by hydraulic power. Direct thrust opens valves without use of gears, pilots or levers.

As a shutoff valve in inaccessible locations pushbutton operation can be used. Remote control by hand or thermostat, of steam or water branch mains for space heating systems, is another application. Opening action is gradual and closing is quick. Such action protects piping and prevents overheating.

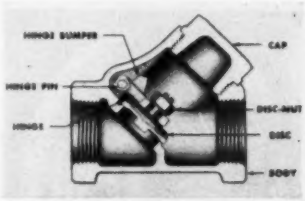
Single-seated valves up to 1½ in. or double-seated units up to 4 in. at 125 psi. are actuated by hydraulic power. When full stroke is used standard valves open in 60 sec and close in 10 sec. Valves are also available with adjustable stop.
Sarco Co, Dept 48, 350 Fifth Ave, New York 1, N. Y.



STEAM TRAP P1135
This small inverted-bucket steam trap has a brass strainer built into body. Known as No. 881 it is a side-inlet, side-outlet trap suitable for draining equipment producing relatively small amounts of condensate such as sterilizers, laundry and dry-cleaning presses, coffee urns, jacketed kettles, unit heaters, soap tanks, etc.

Built-in strainer eliminates separate strainer, extra fittings and installation labor. Trap is available in ½- or ¾-in. pipe sizes, 250-psig operating pressure with capacities between 769 and 1060 lb per hr condensate.
Armstrong Machine Works, Three Rivers, Mich.

CONDUIT PULL-IN ELBOW P833
Fitting allows running conduit around sharp corners without forcing or damaging the wires. It makes sharp right-angle turns possible for straddling beams or for any location requiring a snug corner fit. Removable cover is on elbow's side, allowing use of fitting on either inside or outside corner. This UL-approved fitting is available in ½-, ¾- and 1-in. sizes.
Gedney Electric Co, 1270 Sixth Ave, New York, N. Y.

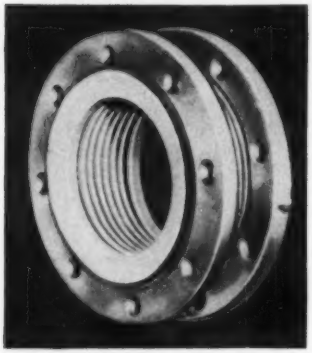


REGRINDING CHECK VALVES P249
Y-pattern brass swing check valves are in 200- and 300-lb pressure classes. Regrinding type with large cap; maintenance is easy. Screwed-end patterns available in ¼- to 3-in. sizes, inclusive; flanged-end patterns in 1- to 3-in. sizes, inclusive.
Crane Co, 836 S Michigan Ave, Chicago 5, Ill.

CONTROL VALVE P1223
Suitable for heating or cooling processes using water, oil, steam or other fluids, *Sterlco Series 150E* is self-contained unit. Consisting of bellows-packed valve with stainless-steel trim and monel bellows, a capillary tube and a thermostat bulb, flow through valve is automatically modulated in accordance with temperature at bulb. Constant temperature, adjustable over wide range, can be maintained. Built in two styles: direct-acting for heating (valve closes as bulb temperature rises) and reverse-acting for cooling (valve opens as bulb temperature rises). Sizes: ½, ¾ and 1 in.; maximum pressure rating is 125 psi.
Sterling, Inc, Indus Control Div, 3738 N Holton St, Milwaukee 12, Wis.

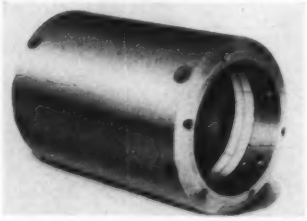
STEAM, AIR SEPARATORS P252
Suitable for separating unwanted liquids and solids from steam, air or vapors under pressure or vacuum, sizes of these units range from 1½ to 34 in. For 50, 125 and

250 psi steam, high-tensile cast iron is used in separator construction; cast carbon steel for 150, 300, 400 and 600 psi steam, ASA standard. Separation takes place with very little pressure drop.
The Swartwout Co, 18511 Euclid Ave, Cleveland 12, Ohio



EXPANSION JOINTS P248
For use where thermal expansion, vibration, misalignment or other conditions demand a flexible chemicalproof piping section. *Chemiseal* Teflon expansion joints are normally supplied with integrally-gasketed flanges drilled to 150-lb ASME standard. Joints are designed for 25-psi pressure at temperatures from —150 to 400 F. Being solid Teflon they can neither be attacked by nor contaminate any known chemical used commercially.
Teflon Products Div, United States Gasket Co, PO Box 3, Camden, N. J.

FEED BUBBLER P327
Sight-feed bubbler controls and visually indicates small rates of flow of air or gas. Sediment trap removes dirt and moisture from line. In bubbler, entire flow of air or gas is passed through liquid in transparent cylinder where rate of flow is shown by bubbles rising through liquid. Any liquid may be used and needle valve at top permits selection of any flow rate from less than 1 bubble per sec to about 20 cfm.
King Engrg Corp, Box 500, Ann Arbor, Mich.



PIPELINE COUPLING P417
Coupling for quick joining of crude oil, gasoline and gas pipelines permits sealing of pipes from 2 to 6 in. in diameter. Full pipeline pressure can be restored immediately and welding done after line is back in service. Because of the mechanical seal with neoprene rings, coupling makes it possible to join high-pressure steel pipelines under hazardous conditions without using a torch. Couplings are designed to withstand 1200 psi indefinitely when set manually, and much higher pressures after welding.
E H Wachs Co, 1526 N Dayton St, Chicago 22, Ill.

FLEXIBLE HOSE P310
Stainless-steel, corrugated, flexible metal hose, fabricated from thin wall tubing with wall thicknesses of .010 in. in the ¼-in. size to .035 in. in the 4-in. size, can be used under conditions of extreme temperatures and corrosion, such as loading chemicals and acids. Normal pitch has a free flexing radius from 10 in. in the ¼-in. size to 41 in. in the 4-in. size. The close pitch has a free flexing radius from 5 in. in the ¼-in. size to 33 in. in the 4-in. size.
Nottingham & Phaneuf, Inc, 330 W 36th St, New York 18, N. Y.

SOLENOID VALVES P102
Two- and three-way *Midget Size* packless solenoid valves for severe and frequent service. They handle wide range of liquids and gases up to 212 F. They can be mounted in any position. Pipe sizes of 2-way valves are ⅛ and ¼ in. (normally closed) and ⅛ in. (normally open). Pressures range up to 300 psi for ac, and to 250 psi for dc. Pipe size of 3-way valve is ⅛ in. only, with pressures up to 125 psi for ac and to 50 psi for dc.
Automatic Switch Co, 379-C Lakeside Ave, Orange, N. J.

CORROSION-RESISTANT FITTINGS P325
Speedline corrosion-resistant tube and pipe fittings can be used with corrosion-resistant tubing or pipe in Schd 5S, 10S and 40S. Three principal fittings are an insert flange, aligning connector and a tube or pipe union. Installation time and setting up cost is reduced by these fittings. Specially designed auxiliary fittings like tees, crosses, elbows, etc, are also produced. Standard tubing and pipe-sized fittings stocked in several AISI grades of stainless steel and Carpenter stainless No. 20.
Horace T Potts Co, Erie Ave and D St, Philadelphia 34, Pa.

SAFETY RELIEF VALVES P255
Large-capacity safety relief valves are designed for domestic water heaters and tanks. Opening pressures are 45, 75, 100 and 150 psi. All inlet connections ¾ in., outlet 1 in. Valves are rated in Btu capacity, and it is possible to select a valve that opens at desired pressure and has capacity equivalent to heat output of firing equipment.
McDonnell & Miller, Inc, 3500 N Spaulding Ave, Chicago 18, Ill.

TUBE STAPLES P423
Extra long, copper, *Tube-Tite* staples, in two new sizes, Item No. 304, ⅜-in. nominal tubing and Item No. 305, ½-in. nominal tubing fastens copper tubing to joists through dry board or plaster. Both are round top, round wire with steel cores for strength. They bring the company's line up to five sizes.
E A Tichenor & Co, Binghamton, N. Y.

TO LEARN MORE ABOUT ANY NEW product, send in cards, page 175

VARIABLE-SUPPORT HANGERS P620
Nonresonant variable-support hanger has two helical springs in parallel that prevent a resonant amplitude regardless of the impressed frequency. Outer or load spring supports entire weight of pipe at all times. Inner or snubber spring functions only when vibration occurs. Without vibration, snubber is unloaded. But with the slightest vibration it is loaded intermittently, changing the stiffness of the hanger with each half-cycle of vibration and preventing development of a resonant amplitude. Available in 1½- and 3-in. travel ranges with several different types of attachment. Installation is simple and adjustments are quickly made from outside hanger.
Bergen Genspring Corp, 15 Park Row, New York 7, N. Y.

WORM-AND-GEAR-OPERATED PLUG VALVES P625
Identified as Fig. 502 GW these plug valves have port area equivalent to 100% of the area of standard pipe, are cast in semi-steel and made in 8-, 10- and 12-in. sizes. They have been added to the line of lubricated plug valves. They will also soon be available in cast-steel full-port type known as Fig. 562 GW and in venturi-type sizes up to 14 in. In venturi type these valves will have same face-to-face dimensions as like-sized series 15 wedge-gate valves. They will be designated Fig. 512 GW for semi-steel, Fig. 572 GW for steel.
Homestead Valve Mfg Co, PO Box 550, Coraopolis, Pa.

EXTREME-PRESSURE VALVES P623

Pressure-balanced, self-aligning tubular valve seat keeps perfect contact with the mating surface of an optically flat porting disk. Rotary movement of this disk opens and closes the flow passages. When there is no fluid pressure a heavy marcel spring-washer maintains the contact between sealing surfaces, while a predetermined hydraulic force acts on seal under extreme pressure. Fluid flow is always through the hole in the center of the *Shear-Seal*, never across sealing surfaces. Types available are ¼- to 1½-in. shutoff valves for pressures from 0 to 6000 psi; 4-way selector valves from ¼ to 1½ in. for same pressures; 4-way dual-pressure valves in two classes for: (1) 3000-psi maximum pressure (2) 6000-psi maximum pressure; manipulator valves from ¾ to 1 in. for pressures of 0 to 1500 psi. Service ratings include all common industrial media like water, air, hydraulic oil, gas, fuel and petroleum.
Barksdale Valves, 1566 E Slauson Ave, Los Angeles, Calif.

LOW-PRESSURE CHECK VALVES P621

Slightest whiff of pressure opens these check valves designed for very low-pressure pneumatic or gas systems. Available in brass or aluminum; other materials used if ordered. Cracking pressure is 4- to 8-in. water. Valve seals before pressure across poppet is equalized and holds bubble tight against any backpressure within its rated range of 0-100 psi. Sealing is obtained with a poppet, which has an accurately machined knife edge impressed into the surface of an "O" ring. Designated as the 119 series.
James-Pond-Clark, Pasadena, Calif.

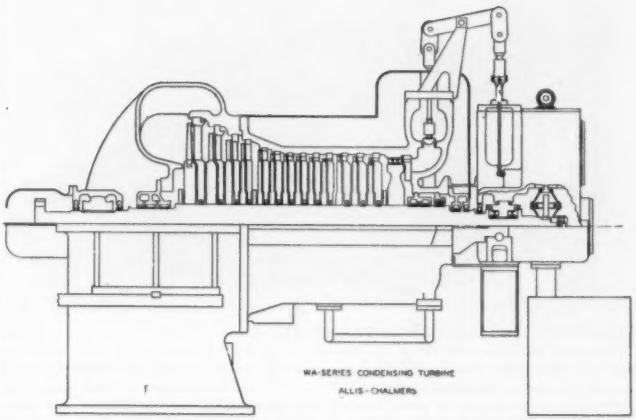
REVOLVING JOINT P619

Type IBR revolving joint is designed for making pipe connections to drum-type dryers, rolls, calenders and other rotating equipment. Available for handling steam, oil, air, water, gas and chemicals. Ball bearings carry load of both radial and end thrust. Packing is self-adjusting, self-sealing chevron type. Joint can be serviced without removing from roll. Built for 150-psi steam, 200-psi hydraulic, and for vacuum service. Suited for speeds up to 500 rpm with steam, 750 rpm hydraulic. Top temperature rating is 450 F. Standard sizes run from ½ to 2 in. with a variety of body styles.
Barco Mfg Co, Dept J-40, 1801 Winnemac Ave, Chicago 40, Ill.

VALVE ACTUATORS P624

Designed for operation of gate, plug, diaphragm and butterfly valves, dampers and sluice gates, these units use steam, air, oil, water or gas in actuating cylinder. Actuating fluid pressure may be as low as 15 psi or as high as 750 psi on standard cylinders. Actuators are basically *Ledeen* cylinders equipped with brackets, valves, controls and couplings to make them suitable for almost any operation needed.
Ledeen Mfg Co, 1602 S. San Pedro St, Los Angeles 15, Calif.

PRIME MOVERS and Accessories



TURBINE-GENERATOR UNIT P440

WA-Series steam turbine-generators, developed in 500- to 7500-kw ratings. High-speed, compact, streamlined with economical regenerative feedwater heating cycles. They can also be tied-in thermodynamically to provide a steam-power balance where low-pressure process steam is utilized. Governor and regulating characteristics provide for paralleling with existing units and tielines.

Design features include simplicity of three-bearing unit construction with quality multistage impulse turbine, housing-type generator, and direct-connected exciter construction.
Allis-Chalmers Mfg Co, S. 70th St, Milwaukee, Wis.

HEAVY-DUTY DIESELS P328

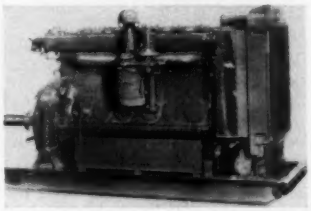
Six models, from 145 to 220 hp, are designed to operate at continuous speeds up to 1400 rpm. Higher operating speed makes possible application in many new services including those requiring torque-converter power transmission. Design features include true diesel operation, unit fuel injection, four valves per cylinder, hydraulic servo-type governor, etc.
Murphy Diesel Co, 5317 W Burnham St, Milwaukee 14, Wis.

AIR-COOLED DIESELS P257

Two models are available. Single-cylinder unit has 8-hp rating at 1500 rpm, 2-cyl unit develops 20 hp at 1800 rpm. Both models have 4¼-in. bore and stroke. Engines are suitable for 3- to 10-kw generator drive. Both models may be furnished with standard SAE bell housing mounted on flywheel cowl. Flywheel driving member and adapter ring accept standard No. 4 SAE clutch. Units are suitable for driving pumps, compressors, generators, etc.
Lister-Blackstone, Inc, 420 Lexington Ave, New York 17, N. Y.

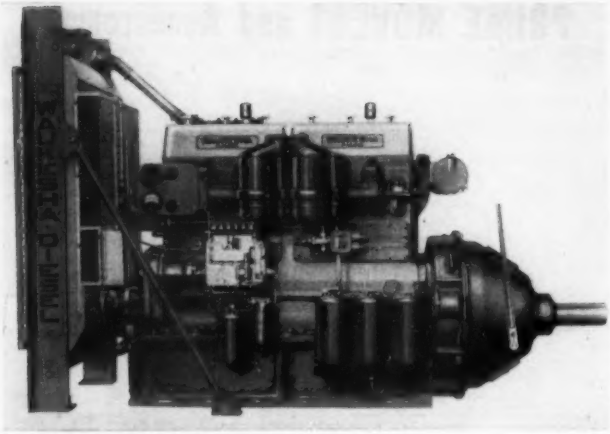
INTAKE SNUBBER P1262

Compact, economical, the SOA Series air-intake snubbers, weighing from 110 to 3700 lb, snub or check incoming air pulsations so pumping noise is reduced below objectionable levels. Its service is primarily for noise suppression in internal combustion engines, compressors and blowers.
Burgess-Manning Co, Libertyville, Ill.



DUAL-FUEL ENGINES P825

Suitable for either natural gas or diesel fuels these units are available in capacities from 135 to 180 hp. They are heavy-duty units using high compression. Gas fuel is fed to engine through air cleaner and intake manifold. Gas valve is controlled by hydraulic governor. Changeover to either fuel is made by positioning a lever.
Murphy Diesel Co, 5317 W. Burnham St, Milwaukee 14, Wis.

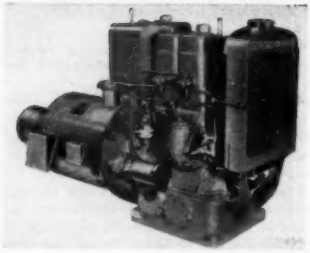


6-CYLINDER 4-CYCLE POWER-PLANT DIESEL **P412**

Maximum continuous output of 201 hp with overload capacity of 272 hp is available from the *Mogul Six* diesel. This 6-cylinder, 4-cycle, solid-injection full diesel has 7-in. bore, 8¼-in. stroke and displacement of 1905 cu in. Recommended for use with high-speed diesel fuels of 45 cetane or above, engine has the spherical combustion-chamber characteristic in all diesels manufactured by this firm. Independent light and power plants are some of the services for which the unit is well adapted. Conversion kit is available for quick changing of the engine from diesel to natural gas, and vice versa, in the field. No internal parts need be changed for the conversion.

Features include alloy-steel, 7-bearing crankshaft with vibration damper and hardened journals and crankpins; hardened wet-sleeve cylinders; oil-jet piston cooling; aluminum alloy pistons; full-floating piston pins; rifle-drilled connecting rods; full-pressure oiling; full-flow series-connected oil cooler, and many others.

Waukesha Motor Co, Waukesha, Wis.



SELF-CONTAINED DIESELS **P246**

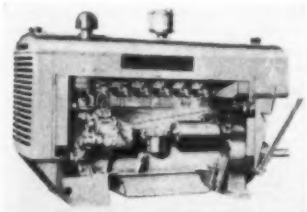
Type 4FS2 diesel supplements type 4FS1 single-cylinder 10- to 15-hp diesel. Rating of 4FS2 is 20 to 30 hp within speed range of 1200 to 1800 rpm. Bore is 4.5 in., stroke 5.25 in. Four-cycle, mechanical injection engine is vertical and classed as extra-heavy duty. It is a 2-cylinder unit.

Nordberg Mfg Co, Milwaukee 7, Wis.

ONE-PIECE SEALING RING **P626**

This one-piece sealing ring has the sealing member on the inner side of the ring. *Inseal* has no "top" or "bottom," seals fully from both sides and cannot be installed upside down. It is suitable for single-groove double-acting pistons in engines, compressors and pumps. A semi-locking arrangement adapts it for use in all two-cycle engines. Ring is said to increase efficiency, lower fuel consumption, have longer life, eliminate damage caused by burning gases escaping through ring gap, and increase cylinder-wall life. Available in sizes of 4 to 96 in. dia.

Double Seal Ring Co, Fort Worth, Texas.



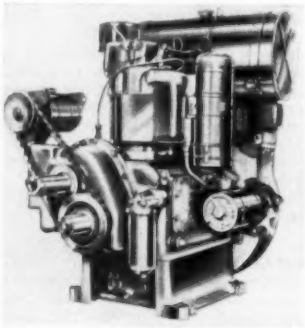
INTERCHANGEABLE ENGINES **P1042**

Portable industrial engines are built in three basic sizes as diesels, gasoline, butane or natural-gas engines. They have about same output ratings, size for size, whether fuels are diesel or carbureted. Model 180-DACU rating is 22 hp, Model 185-DACU 33 hp, and Model 190-DLCU 45 hp, all at 1800 rpm. Mounting dimensions are identical for each size. All units are available with or without clutch and power takeoff.

Waukesha Motor Co, Waukesha, Wis.

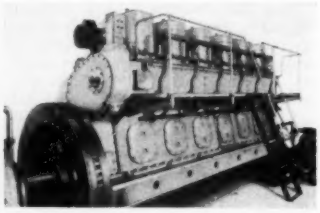
DUAL-FUEL ENGINES **P253**

Series 71 diesel engines can now be fitted to burn natural gas in accordance with true diesel high-compression principles. Option is available both on new



engines leaving factory and engines already in use. For latter, a factory-engineered kit is used for changeover. After changeover, engines burn either natural gas with a pilot charge of diesel fuel or diesel fuel alone. Change from dual-fuel to diesel is made instantly by moving small lever on gas-governor assembly. Dual-fuel unit has no electrical ignition system. To date builder recommends operation only on natural gas.

Detroit Diesel Engine Div, General Motors Corp, 13400 W Outer Drive, Detroit 28, Mich.



DIESEL ENGINES **P1227**

Intended primarily for stationary service, such as generator drive, pumping on oil or gas pipelines, municipal water pumping, etc, these engines are 4-cycle 17x20-in. units with speeds of 257 to 375 rpm. Available with 6 and 8 cyl, normally aspirated or supercharged, capacities range from 700 to 2080 bhp.

Baldwin Lima-Hamilton Co, Philadelphia 42, Pa.

WILL GET YOU MORE DETAILS

if you send in cards on page 175

Centrifugal, Rotary, Reciprocating, Special Purpose, Vacuum
PUMPS

OIL-BURNER PUMPS P858

Built in ¾-, 1½-, 3- and 5-gpm sizes, the pumps have been tested and approved for oil-burner service by Underwriters' Laboratories, Inc. They are available in either the packed-box or mechanical-seal designs, with or without relief valve. The ¾-, 1¼- and 3-gpm sizes are flange mounted, while the 5-gpm size is foot mounted.

Geo D Roper Corp, Rockford, Ill.

CENTRIFUGAL PUMPS P860

Designed to permit mounting pump on any motor with NEMA Type "C" mounting flange, these pumps are vertical and horizontal types, each in 25 standard sizes. Capacities range up to 220 gpm; heads up to 165 ft; motors ¼ to 7½ hp; speeds 1750 and 3500 rpm, maximum total pressure 125 lb, suction pressure 50 psi, and maximum recommended liquid temperature 200 F.

Complete construction details, metal specifications, performance data and related information is contained in illustrated bulletin No. 4350.

Deming Co, Salem Ohio.

ROTARY PUMPS P862

Designed for pumping petroleum products and other light or viscous fluids in volumes to 85 gpm against pressures up to 150 psi, as required for rotary and steam-atomizing oil burners, oil-transfer, lubrication, hydraulic systems and similar service.

They have only three working parts, a power rotor and a pair of sealing or idler rotors which mesh with the power rotor to convey continuously from inlet to outlet.

De Laval Steam Turbine Co, Trenton 3, N. J.

MATERIALS-HANDLING PUMP P232

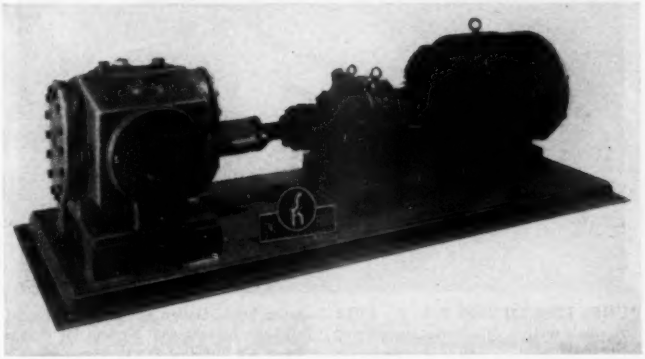
Air-operated high-volume materials-handling pump, the *Mogul-Powerflo,* carries a specially patented device called the *Evenflo* to prevent spurting. Pump supplies industrial spray materials through hoses for spray gun, pole gun, or extrusion gun applications. Extra-high-volume pumps operate within a broad air-pressure range from 20 to 175 psi, fired by air compressors with either large or small output capacity.

Gray Co, Inc, Industrial Div, Graco Square, Minneapolis 13, Minn.

VERTICAL TURBINE PUMPS P908

Line of new models allows selection of a pump for nearly any capacity and head conditions from 50 to 15,000 gpm. Pumps have extra-size bearings, shaft seals, enclosed impellers, wearing rings, flanged and bolted bowls. They are either oil or water lubricated and can be driven by motor, right-angle gear or belt. Unit can be installed in wells for irrigation, industrial and municipal water supply and for pumping refinery products or other liquids. Descriptive bulletins with specifications are available.

Worthington Pump & Machinery Corp, Harrison, N. J.



STEAM-JACKETED PUMP P204

A steam-jacketed herringbone gear pump handles viscous liquids at high temperature. To insure even thermal distribution, the steam jacket covers all internal parts. The inlet, outlet and cover flanges are cast integral with the pump base. Rigid housing construction eliminates distortion due to pipe strain or misalignment. Straight-bore housing prevents shaft deflection.

Schutte & Koerting Co, Dept P-A, 12th & Thompson St, Phila. 22, Pa.

CHEMICAL FEEDER P226

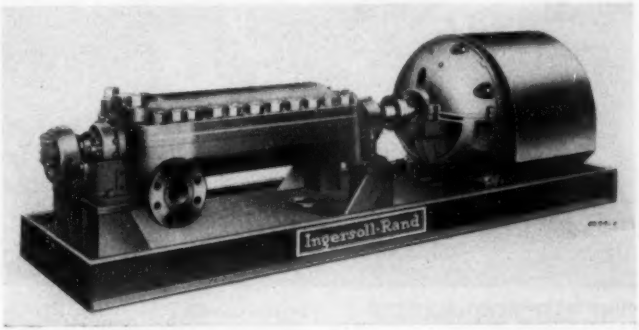
Highly accurate over a feeding range of 100 to 1 with positive nonflooding feeding mechanism in stainless steel, Model 50-8 midget belt gravometric feeder supplies dry chemicals for industry use continuously by weight over an 8-in. belt with a 1-ft weight span and a capacity of 3 cfm.

Omega Machine Co, 345 Harris Ave, Providence, R. I.

PUMP AND MOTOR P206

Close-coupled motor-driven pump has sealed motor bearings, a unit cast frame, double seal on front motor bearing and large opening in frame between the pump and motor to make packing maintenance easy. Ratings are 10 to 500 gpm at heads to 220 ft.

Allis-Chalmers Mfg Co, 922 S. 70 St, Milwaukee, Wis.

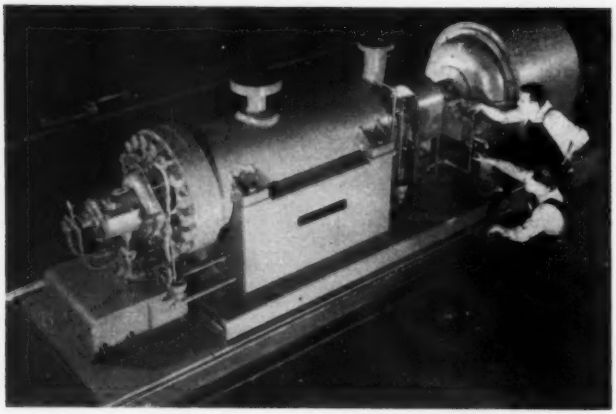


HIGH-PRESSURE PUMP P209

Multistage centrifugal pumps are good up to 1200 psi, with capacities to 1600 gpm. They are built in 3-, 4-, 5- and 6-in. sizes with from 3 to 9 stages. Applications cover a wide range of boiler-feed pipeline pumping, and refinery as well as other general high-pressure industrial services.

Pressure differential between stages is sealed by corrosion-resistant cast iron or alloy-steel piston rings around the outer diameter of the channel rings. These hydraulic-type step-seal rings have a metal-to-metal fit with the casing. Axial thrust, developed by in-line staging of the single-suction impellers, is counteracted by a hydraulic balancing drum. The drum forms the only high-pressure breakdown in the pump and is accessible through the discharge stuffing-box extension.

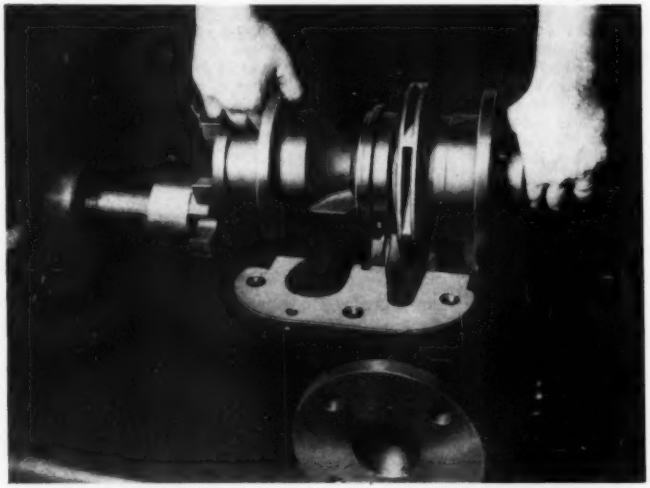
Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.



PUMP: 1200 TO 2500 PSI P912

A single-suction double-case, barrel-type boiler-feed pump. It has back-to-back impellers and radially balanced volutes in a split inner casing. In the larger capacity pumps, first stage has two single-suction impellers in parallel. Each takes one half flow giving advantages of a double-suction impeller. This permits operation at lower suction heads. Design gives radial and axial hydraulic balance and freedom for expansion in any direction as well as accessibility for maintenance. While the pump is intended primarily for boiler-feed service it can be used on other high-pressure applications.

Allis-Chalmers Mfg Co, Milwaukee 1, Wis.



PUMP WITH SERVICE EXCHANGE PLAN P911

Small standardized general-service pumps to fit a service and exchange plan. All parts except the pump casing are contained in rotor assembly. When maintenance is required you simply remove top cover and endplate studs, lift out rotor assembly and drop in a new one.

Through the service and exchange plan new rotors are available for immediate shipment from factory stock. Old assembly is returned to factory and full credit is given for all serviceable parts. As an alternate to this a customer can exchange the entire pump for a factory rebuilt and guaranteed unit, with credit allowed for serviceable parts.

Pumps are built in three sizes for capacities to 450-gpm and heads to 230 ft. Stainless-steel impeller shaft eliminates shaft-sleeves, and reduced shaft length between bearings gives a stiffer shaft to care for hydraulic disturbances.

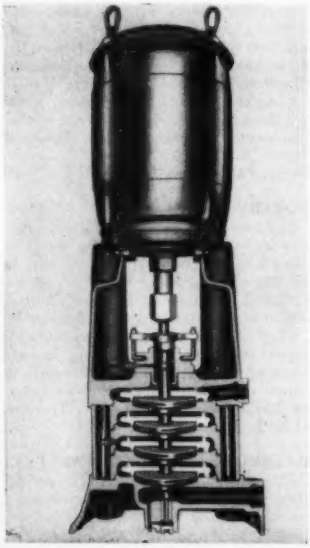
De Laval Steam Turbine Co, Trenton 2, N. J.

TESTING PUMP P757

A self-contained hydrostatic pump is ready for automatic operation when the air supply is connected. Definite relationship between the areas of the air piston and pump plunger automatically balances the air pressure against the required hydraulic pressure. For example, a 12-in. air cylinder driving a ⅝-in. plunger and operating on 80-psi air pressure develops 25,000 psi hydraulic pressure.

It tests boilers, pressure vessels, pipe and piping systems, shell and other hollow forgings, vacuum pumps, vacuum valves, chambers and dryers. It also calibrates and tests pressure gages and is used for many other hydrostatic test purposes.

Milton Roy Co, 1300 East Mermaid Lane, Philadelphia 18, Pa.



HIGH-PRESSURE PUMP P421

This vertical multistage high-pressure centrifugal pump requires small floor space. It has wide application in general industrial use where the liquids are non-corrosive to iron and bronze. Can also be used for boiler-feed service where temperatures do not exceed 250 F.

Pumps are built in 2, 3, 4, and 5 stages with 1½-in. suction and 1-in. discharge. Each stage is a separate section. All stages are held together by through bolts outside of water passages.

Pump and motor are built together as unit. Motor bearing is ample size to carry the small thrust load of pump. Stainless-steel pump shaft couples to motor with compression-sleeve coupling. When specified, a mechanical seal can be had in place of stuffing-box packing. Capacities range from 10 to 45 gpm against heads up to 400 ft, with 2-, 3-, and 5-hp motors operating at 3500 rpm.

The Deming Company, Salem, Ohio.

VACUUM PUMP **P759**

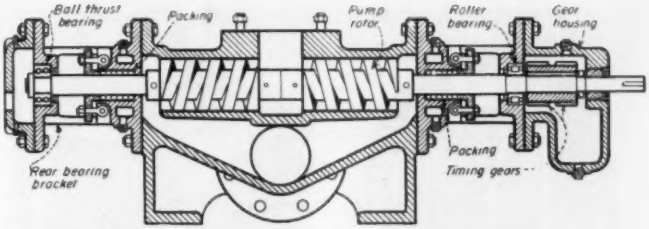
Small, compound vacuum pump uses oil-seal pumping system for high vacuum. Has a free air displacement of 4.9 cu ft per min and operates with a 1/3-hp motor. On a blank test, each unit is required to produce McLeod gage absolute pressure readings 0.001 mm Hg, or better. Double sealing-oil reservoirs give continuous oil purification, which promotes high vacuum regardless of surrounding atmosphere. It requires no warm-up period, going to work at the snap of the motor switch.

Kinney Manufacturing Co, 3532 Washington St, Boston, Mass.

METERING PUMP **P215**

Positive-displacement metering pump has a reciprocating plunger of ¼-in. diameter. A cam, driven by a fractional-horsepower gearhead motor, actuates the spring-loaded cam follower attached to the plunger. Limiting the travel of the plunger by a simple screw adjustment controls the volume delivered. Capacity can be varied from 3 cc per hour at minimum stroke length to 800 cc per hour at full stroke length. Operating pressures up to 1000 psi.

Milton Roy Co, 1305 E Mermaid Lane, Philadelphia 18, Pa.



SCREW PUMP **P333**

An external-gear and bearing-bracket positive-displacement screw pump handles nonlubricating liquids in capacities of 1 to 700 gpm. External timing gears and bearings are in housings that form an integral unit with the pump's body. For less wear on bearings and timing gears, rotors are positioned axially and radially. A double-row contact ball bearing positions the rotor axially. Precision-cut timing gears, heavy-duty roller bearings position the rotor radially.

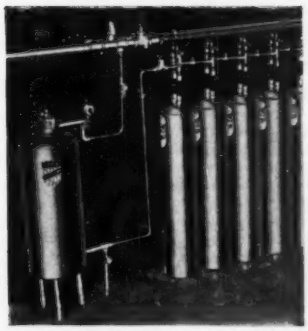
Sier-Bath Gear & Pump Co, 9252 Hudson Blvd, North Bergen, N. J.

VACUUM CONTROL **P235**

Airtight on both vacuum and pressure side of diaphragm, the 111-D differential pressure or vacuum control has numerous applications where it is necessary to regulate pressure between two vessels and where no leak path between diaphragm and atmosphere can be tolerated. Units are small, obtainable in standard ratings from 0 to 20 in. of water pressure or vacuum with range adjustment and fixed differentials from 0.2 to 2.0 in. of water.

Coral Designs Div, Henry G Dietz Co, 12-16 Astoria Blvd, Long Island City 2, N. Y.

WATER TREATMENT EQUIPMENT and Supplies



SOFT WATER **P131**

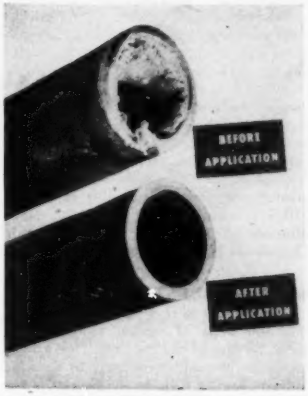
Standard softener units, 2000-gal capacity, 7-gal-per-min flow rate, can be connected to a header assembly to provide soft water for laundries, commercial institutions. Push button *Cul-Flo-Valvs*, brine maker, check valves, brine timer and brine-and-rinse flow-rate controller are standard.

Culligan Soft Water Service, Northbrook, Ill.

WATER DEIONIZER **P217**

Single-tank deionizer brings high-quality deionized water within range of those who have found cost of evaporated or distilled water prohibitive. Unit produces high-quality mineral-free water almost completely free of silica and CO_2. Final specific resistance is above 5 million ohms—from 10 to 100 times greater than that of most distilled water.

Elgin Softener Corp, Elgin, Ill.



WATER TREATMENT **P231**

Custom-made boiler-water treatment employs a coagulant combining all advantages of chemical and colloidal methods in a simple, effective system, according to its manufacturer. *Luminite* is designed for effective removal and prevention of scale formation and elimination of pitting, corrosion, rust.

Warren Refining & Chemical Co. 750 Prospect Ave, Cleveland, Ohio.

ION-EXCHANGE RESIN **P1019**

Medium-capacity cation-exchange resin, *Amberlite* IR-105G, combines the hydraulic behavior of company's *Amberlite* IR-100 with the high capacity and regeneration efficiency of IR-105, and replaces these products.

It is a phenolic resin furnished in granular, rather than beaded form, to improve its hydraulic characteristics. Small commercial-scale tests for the past three years have established its physical ruggedness and chemical stability.

Resinous Products Div, Rohm & Haas Co, Washington Sq, Philadelphia, Pa.

WETTING AGENT **P714**

On-the-line treatment of ordinary water or sea water, to increase its effectiveness in putting out fires, can be had with the *Pyrodyne* capsule. Capsule is solid, weighs 3 lb, contains highly concentrated active blends of wetting elements selected for firefighting. Each capsule produces over 1000 gal of treated water.

Aquadyne Corp, 220 E 42nd St, New York 17, N. Y.

WATER SOFTENER **P126**

New-design sedimentation tank, *Sphericone*, has hemisphere mounted on a cone. The raw-water, steam and chemical inlets, spray headers, deaerator and treated-water collector are all mounted in the hemisphere. The inverted cone contains the downtake, sludge bed and rising zone of water being treated.

Graver Water Conditioning Co, 216 W 14th St, New York 11, N.Y.

SULFIDE REMOVAL **P508**

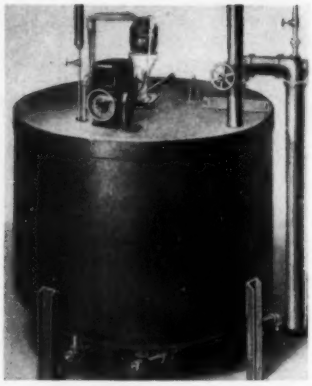
Practical, low-cost removal of sulfides from industrial and domestic water supplies is possible with *Amberlite* IRA-410, a high-capacity anion-exchange resin. Necessary equipment need be no more complicated than the familiar water softener. If water hardness is high, softening and sulfide removal can be carried out together with no added cost for chemicals by using *Amberlite* 120, a strongly acid cation exchanger in the same unit with IRA-410. The new resin is an amine and is a high-capacity anion exchanger with a strong basic character that permits adsorbing weakly acidic constituents such as H_2S.

Rohm & Haas Co, Resinous Prod Div, Washington Square, Philadelphia, Pa.

EVAPORATOR PURIFIER **P404**

Line of evaporator purifiers, the *Upflow*, for use inside industrial evaporators and other large tanks, is designed to remove entrainment from vapors. Efficiency is said to be extremely high, pressure drop negligible, even at vapor velocities above 25,000 fpm. Units are made in three models. The first, Type ASD, is a one-piece unit for installation in evaporators with large outlet nozzles. Second model, ASD-1, is made in five parts for easy installation through a large manway. The last model, ASD-2, an 11-piece assembly, is divided into this many small parts so it can go in chambers where access may be made only through small outlet nozzles or cramped manways. Sizes range from 12 to 36 in.

Centrifix Corp, 3566 Payne Ave, Cleveland, Ohio.



CHEMICAL FEED **P941**

Rugged, flexible chemical-feed control, the *Electro-Chemical*, takes water through an integrating raw-water meter. When a predetermined amount passes, control unit and a time switch go into action. Since chemical solution is proportional to flow of water, manually adjusting a knob on time-switch dial varies rate of chemical feed as desired.

Permutit Co, 330 W 42nd St, New York 18, N. Y.

ALKALINITY INDICATOR **P873**

New total-alkalinity indicator, used exactly like methyl orange, has the same endpoint but gives quicker, more accurate analysis even in colored and turbid solutions. Indicator is green when in alkaline solutions. Just before reaching the endpoint the greenish color changes to gray, and at the endpoint to purple.

Power Chemicals Div, E F Drew & Co, Inc, 15 E 26th St, New York 10, N. Y.

CORROSION INHIBITOR **P507**

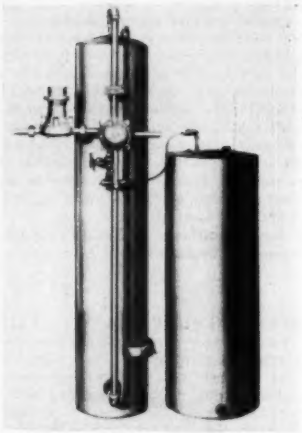
New inhibitor, *Santolene C*, for use in light petroleum products inhibits rust formation in lined vessels and storage tanks holding such materials as gasoline, kerosene and fuel oil. By following the procedure of modified ASTM D 665—47 T (80 instead of 140 F) as little as 0.002% by weight of *Santolene C* is effective. Under extreme conditions, such as salt-water contamination or long-time static storage, greater concentrations, possibly as high as 0.01%, are used.

Monsanto Chemical Co, Organic Chemicals Div, St. Louis, Mo.

WORKING AGENT **P317**

Just one part of *Hydrodyne* added to one thousand parts of coolant reduces interfacial tension of the coolant. This greatly increases the cooling efficiency by assuring intimate contact with working surfaces and speeding dissipation of harmful heat. *Hydrodyne* improves any usual coolant, regardless of oils or additives used.

Aquadyne Corp, 220 E 42nd St, New York 17, N. Y.



WATER SOFTENER **P1033**

Small, zeolite-water softener, *Junior Industrial*, for installations under 100 gal per minute is supplied in two groups and in single and double units. Group I comes in 12, 18, 24 and 30 in. dia and Group II in 36-, 42- and 48-in. tank dia.

Cochrane Corp, 17th St and Allegheny Ave, Philadelphia 32, Pa.

ANTI-FOAM **P504**

Improved Dearborn formula No. 659 gives a product with unusual solubility characteristics, plus the advantages of oxygen-scavenging and sludge-conditioning agents. In addition, the product is said to inhibit aerosol formation in steam, thus reducing the prime cause of entrainment.

Dearborn Chemical Co, 310 S Michigan Ave, Chicago 4, Ill.

DIAPHRAGM HAND PUMPS **P627**

Designed for safe operation, these pumps are approved by Underwriters' Laboratories for dispensing gasoline, and other petroleum-base products, glycerin, alcohol, turpentine and other solvents. They have bung adapters with vise-type screw, which can be tightened on the suction stub without a wrench or pliers. Suction stubs are galvanized, and all metal parts not made of stainless steel are treated on the inside to prevent rust and corrosion. These pumps can be installed in 1½- and 2-in. bungs of drums or tanks. Operating with a single-diaphragm, they pump on both forward and backward strokes and have a capacity of 1 gal per 5 strokes.

Tokheim Oil Tank & Pump Co, Fort Wayne, Ind.

MIDGET ROTARY PUMP **P628**

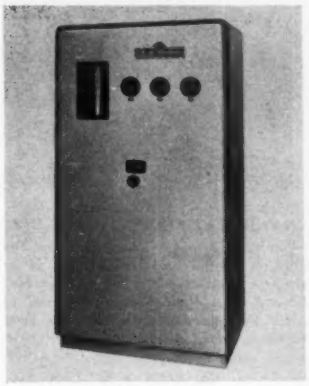
With an over-all length of only 3 9/16 in., this pump can be fitted into small space. It is rated 1.65 gpm at 1750 rpm against pressure up to 150 psi. It pumps in either direction of rotation, and bearings do not require oiling. Eccentric pistons made of resilient compounds handle oil, kerosene or viscous fluids.

Enco Engineering Co, 12 New York Ave, Newark, N. J.

VERTICAL PUMP **P629**

This pump for general industrial use has a mechanical seal that adapts it to handling butane, propane, gasoline and other petroleum products. It is a small standard vertical design that has pipe-tap suction and discharge nozzles. Built in one barrel size it can have either an open or closed impeller bowl assembly. By omitting the barrel the pump can be used for sump or tank service. The barrel is 6-in. standard pipe flanged at the top to connect to the nozzle head. A flange at top takes solid-shaft 3550-rpm 1½-to-10-hp motors. Top ratings are 100 gpm, 350 psi, 250 F.

Byron Jackson Co, PO Box 2017, Terminal Annex, Los Angeles 54, Calif.



CHLORINIZER **P118**

Visible gas flow, automatic control of feed rate and sequence of point of application are features of the *HCVS* high-capacity chlorinizer. Unit is a simplified apparatus for metering and control of chlorine gas-feed by manual, semi-automatic or automatic proportional means for control of slimes in power-plant cooling-water systems.

Builders-Providence, Inc, 345 Harris Ave, Providence 1, R.I.

HYDRO-PNEUMATIC PUMP **P422**

Normally powered by plant air this pump is self-contained and develops pressures up to 20,000 psi at small volume. It is used in testing tubing, valves and pressure vessels, in the operation of small molding presses, and in other services requiring high pressure at small volume.

Aldrich Pump Co, Allentown, Pa.

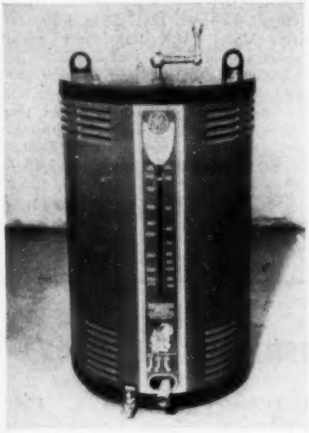
ROTARY PUMP **P419**

Totally enclosed rotary pumps are available in capacities of 20 to 92 gpm. They are suited for pumping all types of clean liquids, either indoors or outdoors. Totally enclosed with oiltight, watertight guards, these pumps can be safely used outside in all kinds of weather without a pump house or protection of any kind when equipped with a totally enclosed motor. These pumps have oiltight, cast-iron gear case with oil gage, filler and drain plug, stainless-steel pump shaft and extra long stuffing box on pumps, rustproof studs and nuts.

Viking Pump Co, Cedar Falls, Iowa.

Welders, Rods, Fluxes and all supplies necessary and related to

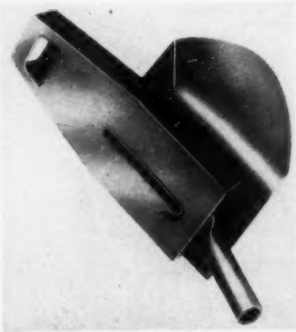
WELDING EQUIPMENT



PORTABLE WELDER **P119**

Silicone-insulated, portable, ac welder, the 6WK30J series, is water repellent and unaffected by high temperatures as a result of this insulation. *Hot-Start* automatic control gives instant arc striking without any manual adjustment. This welder averages less than one lb per amp of maximum output; weighs 325 lb and has a current range from 40 to 375 amp.

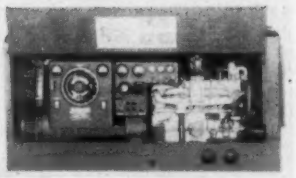
General Electric Co, 1 River Road, Schenectady 5, N. Y.



WELDING SHIELD **P922**

A specialized 18-inch welding shield designed for getting into offset or close places, *Weldiscope* consists of conventional fiber shield with a periscope. Device gives a true picture and not a reverse one such as you get with mirrors.

Industrial Products Co, 2820 N Fourth St, Philadelphia 33, Pa.



ARC WELDER **P426**

Gasoline-engine-driven, 40-volt, 300-amp, self-contained arc welder has a 3-kw auxiliary power generator, a self-starting 6-cylinder, 1500-rpm, 4-cycle Chrysler engine, a battery-charging generator and voltage regulator, plus a mechanical governor control for engine speed. Generator has a current range of 50 to 400 amp.

Hobart Brothers Co, Hobart Square, Troy, Ohio.

HIGH-DENSITY WELDING **P1018**

New welding process, *Hidensity*, employs welding-current densities on 5/64-in. wire, which melts the electrode at speeds comparable to 10,000 amp on standard 5/16-in.-dia coated hand electrode. This process can be used on the company's standard SAE 600 or SAE 900 welding generator, or any SAE 600 gasoline-engine-driven generator. Use either a 3/32- or a 5/64-in.-dia electrode under welding currents up to 600 amp. Because of the small electrode diameter, current densities are high and produce a deep penetrating arc, allowing high welding speeds.

Lincoln Electric Co, Cleveland 1, Ohio

WELDING ROD **P517**

Cast iron, general-purpose welding and brazing rod, All-State No. 3. Copper-coated to prevent rusting and improve flow characteristics, it gives a weld with tensile strength up to 48,000 psi, a Brinell hardness of 170-200, and under a working temperature of 1400 to 1500 F. Rod is applied with No. 1 cast-iron flux and a neutral oxy-acetylene flame. It does not require melting of base metal or "puddling the weld." Large castings require preheating to about 800 F.

All-State Welding Alloys Co, Inc, 273 Ferris Ave, White Plains, N. Y.

SOLDER FLUX **P227**

Improved aluminum solder flux can be reactivated after drying out by simple addition of tap water. New flux stems from discovery of a chemical combination permitting water as a solvent to replace alcohol. This flux can be used with aluminum solder rods of any commercially available brand with an open flame and, under

Don't Miss these Welding Items

certain conditions, with a soldering iron. It makes solder flow into the joint, greatly enhancing inherent sealing and pressure-tightness quality of solder.

All-State Welding Alloys Co, Inc, 273 Ferris Ave, White Plains, N. Y.

WELDING ELECTRODE P222

Thoriated tungsten, long used in electronic tubes because of its excellent electro-emission characteristics, is now available as a nonconsumable electrode, *Thor-Tung for Heliwelding*, Airco's inert gas shielded dc straight polarity arc-welding process. *Thor-Tung* operates much cooler than standard tungsten electrodes, permitting higher current on given size electrodes at greater arc stability and lower current. Because of its permanency, this welding rod may be pointed to permit continued operation at extremely low current.

Air Reduction Co, 60 E 42nd St, New York 17, N. Y.

TRANSFORMER WELDER P234

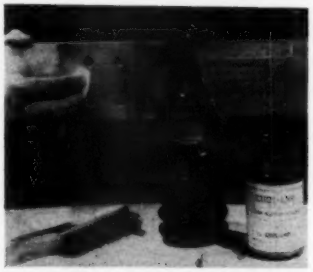
Small, compact, 12x17x23-in. high, 200-amp, Model MCX transformer welder covers a wide range of applications from light-duty sheet-metal jobs to heavy-duty industrial work. Three current ranges can be selected with insulated tapered plug connectors. Infinite hand-crank adjustment within each range provides current from 30 to 250 amp. This permits using 1/16 to 3/16 dia electrodes.

Air Reduction Co, 60 East 42nd St, New York 17, N. Y.

VIBRATION ISOLATOR P103

Adaptable to many types of machinery and equipment *Finnflex* Type 9 vibration isolator consists of a steel channel floated in rubber between two steel angles. Because spring index is not constant, resonance is avoided. Isolators come in lengths up to 18 in. in four rubber stiffnesses for loads of 40, 50, 70 and 105 lb per in. of length at ¾-in. deflection.

Finn & Co, 2850 Eighth Ave, New York 30, N. Y.



SILVER-PLATING POWDER P145

For plating high-current connections on the job. Only equipment needed is an abrasive cloth, rag and water. *Cool-Amp Silver-Plating Powder* deposits a coat of silver that will not peel off and gives maximum conductivity for copper, brass or bronze contacts.

Cool-Amp Co, 8603 S W 17th Ave, Portland, Ore.

Miscellaneous Equipment and Supplies

WIRE MARKERS P146

Quik-Label colored wire markers are of silicone-treated cotton cloth with adhesive backing. They stick permanently to wire without moistening. Markers come in 14 standard NEMA colors.

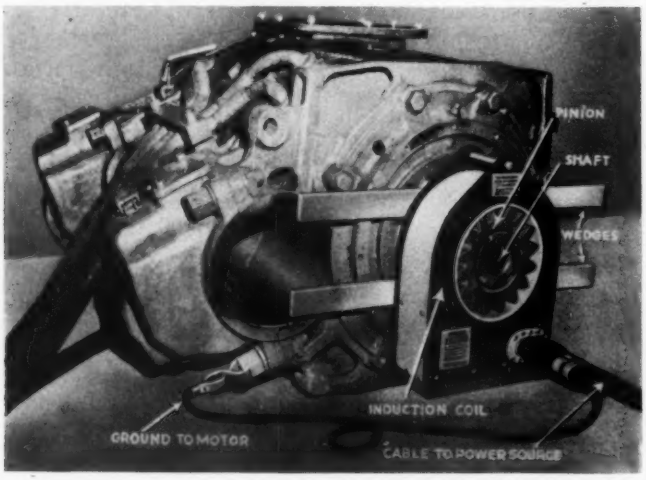
W H Brady Co, 16 East Spring St, Chippewa Falls, Wis.

EXTENSION SCAFFOLD P308

Electrically operated extension scaffold permits working up to heights of 26 ft above floor level. Ball-bearing swivel casters on all four legs make it easy to maneuver. Scaffold is sturdy welded steel within a U-frame.

Atlas Industrial Corp, 849—39th St, Brooklyn 32, N. Y.

INDUCTION HEATER FOR PINION REMOVAL P1248



To remove pinion, the induction heater is slipped over gear and electric power applied to its induction coil. Removal usually takes one to two minutes. Device generates heat within the pinion. As a result, the surface is not overheated and the pinion can be removed with but little pressure. **National Electric Coil Co, Columbus 16, Ohio.**

HAND PUNCH P4077

Quick, accurate, on-the-job cutting of washers and gaskets from leather, rubber, canvas, felt, soft brass, copper, lead and other light materials is possible with the self-centering *Centr-O-Punch*. A receding pointed plunger marks dead center when the first or outside cut is made so position-

MORE ITEMS ON PAGE 176

To Get More Information.....

The selected items described here were presented for your interest and information, and to help you solve plant problems. The manufacturers are eager and anxious that you get full and complete details about their equipment. To help you get these details, we've provided the cards below.

USE THESE FREE CARDS

HERE'S ALL YOU DO!

Pick out the equipment you are interested in. Write the number of the item in the boxes to the right. Fill out your name, address, title, and company. Tear the cards off and drop them in the mail!

BE SURE

You fill in your complete address and other information requested on each card you use. This will speed up our handling of your requests to the manufacturer.

To get further information about the equipment described, merely write the numbers of the items in the spaces below, fill out your name, address, company, and title, and drop the cards in the mail. No postage required! We'll do the rest.

Your Name_____ Title_____

Your address_____

Your company name_____

To get further information about the equipment described, merely write the numbers of the items in the spaces below, fill out your name, address, company, and title, and drop the cards in the mail. No postage required! We'll do the rest.

Your Name_____ Title_____

Your address_____

Your company name_____

ing for the second or inside cut is accurately established. The material is automatically ejected with each cut. No clogging of barrel to cause loss of time and efficiency. Cutter sizes range from ⅛ to 1 in. for single cutters and, in the larger sizes, up to 2½-in. dia.
Rini Metals Co, Dept J2, 1518 Walnut St, Philadelphia 2, Pa.

BLOCK INSULATION P527
Curved blocks of hydrous calcium silicate are now available for vessels up to 60-ft diameter. Curved blocks nominally 18 in. wide; for vessels greater than 60-ft diameter, flat block is used. Material insulates effectively up to 1200 F, block thickness being 1 to 6 in. for flat-surface insulation.
Owens-Illinois Glass Co, Kaylo Div, Box 1035, Toledo 1, Ohio.

MAGNESIA INSULATION P410
The number of basic sizes in which *Thermalite* 85% magnesia pipe covering is now manufactured has been greatly reduced. This material comes in sectional form with thicknesses revised so every size pipe covering will fit precisely over or into another basic pipe size. *Thermalite* registers a considerably lower density than before, has a thermal conductivity lower and well within needs of all recognized "specs."
Ehret Magnesia Mfg Co, Valley Forge, Pa.

PNEUMATIC CYLINDER P512
Cast-aluminum bucket-type cylinder, the B-50, is a new design of "O"-ring-sealed pneumatic cylinder with a piston positioner mounted in the head plate. This ring provides a perfect seal with minimum friction. The positioner mounts on the head plate and takes its position by means of a contact spring riding on the piston. Cylinders are suitable for use with air-supply pressures up to 100 psig with repositioning accuracy to 1/500th part of the total travel. Series available in 4-, 6- and 8-in. bores and strokes up to 4 in.
Conoflow Corp, 2100 Arch St, Philadelphia 3, Pa.

GLASS BLOCK P519
New water-repellent finish applied to exposed faces of light-directing glass block eliminates the need for strong acids to remove masonry deposits and other foreign materials from the glass-block surface when a building job is completed. The finish prevents adhesion of mortar to the faces during the laying operation, which means easier and faster cleaning.
American Structural Products Co, Owens-Illinois Glass Co, 409 Lexington Ave, New York, N. Y.

AIR-CYLINDER MOUNTING P563
Quicker, easier installations of air and hydraulic cylinders with single or side-by-side manifold mounting requiring no pipe connections to the cylinders, is the prime advantage of the new O-ring cylinder mounting. With this mounting the piping connects directly to a port in a machined flat-surface plate or manifold and the cylinders mount on this plate with their ports mating in perfect alignment. The O-ring seals, at the mating surfaces of the cylinder port, assure a leakproof seal under pressure and suction. Mounting flanges are secured to mounting plate by regular bolts or screws. The new mounting is said to give (1) greater hydraulic fluid flow because the ports are equivalent to ports one size larger than conventional (2) lower pressure loss (3) smoother fluid flow (4) reduced turbulence and aeration.
Miller Motor Co, 4027 N Kedzie Ave, Chicago 18, Ill.

CHROME-PLATING UNIT P245
Normal life of most cutting tools and wear parts can be multiplied 3 to 10 times by this hard chrome-plating finish. *Chromaster* will hard-chrome-plate surfaces up to 10-sq inches at current density of 2-amp per sq in. Using this process, ½ minute is the average time required to plate cutting tools and wear parts.
Ward Leonard Electric Co, Mount Vernon, N. Y.

TANK-HEATING NOZZLES P1045
Designed for heating liquids in tanks, *Sparger* nozzles discharge steam at high velocity into liquid. Circulation is set up in tank by entrainment of liquid in nozzle. Constant agitation is maintained in tank.
In bronze, cast iron, stainless steel and Haveg, nozzles are suitable for corrosive and other liquids. One nozzle in a 100-gal tank circulates 20 gpm of water and raises liquid temperature 40 F in 11 minutes when supplied with 183 lb per hr of steam at 40 psig.
Schutte & Koerting Co, 12th and Thompson Sts, Philadelphia 22, Pa.

PRESSURE GENERATOR P632
A self-reciprocating pressure generator operating on plant air pressure runs continuously at maximum capacity to build up desired pressure in hydraulic system. When air and hydraulic pressure balance, pump stops. Each pump develops a discharge-pressure ratio range of at least 6 to 1, so a single unit may be used where different test pressures are required.
Milton Roy Co, 1302 E. Mermaid Lane, Philadelphia 18, Pa.

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ANNUAL NEW BULLETIN REVIEW—1951

Reviews of new catalogs and bulletins taken from regular issues of POWER during the past twelve months. Use the index below to find the ones you are interested in, then fill out and return the free postpaid cards from page 189

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AIR CONDITIONING, HEATING, REFRIGERATING AND VENTILATING EQUIPMENT

A1 **GAS UNIT HEATERS** — 4-page folder No. 30-C-43 illustrates and describes Pittsburgh gas unit heaters, Series C, featuring cast-iron heat exchangers. Specifications for 6 sizes, ranging from 85 - 215,000 Btu per hr, are included. Automatic Gas Equip Co, 301 Brushton Ave, Pittsburgh 21, Pa.

A2 **UNIT CONDITIONERS, COILS** — 68-page catalog No. 425 covers complete line of Bush coils, air-handling and -conditioning units, evaporative condensers, and cooling towers for every commercial and industrial air-conditioning need. Bush Mfg Co, West Hartford 10, Conn.

A3 **INDUSTRIAL VENTILATION** — Guide provides a concise yet thoroughly informative coverage of general industrial ventilation problems and their economical solution. Propeller Fan Mfrs Assn, 2159 Guardian Bldg, Detroit 26, Mich.

A4 **FAN ROOF VENTILATOR** — 4-page folder No. 341 describes the Airlift, a centrifugal fan roof ventilator for efficient duct exhaust against static pressure. Operates at very low noise levels. Table of capacities is given. Swartout Co, 18511 Euclid Ave, Cleveland 12, Ohio.

A5 **PRESSURE BLOWER** — 32-page booklet No. 5001 covers the new Moore Class 2000 direct-drive axial-flow pressure blower for volumes up to 100,000 cfm and pressure up to 4 in. wg. Engineering data and price list are given. Moore Co, 800 S Missouri, Marceline, Mo.

A6 **COOLING TOWERS** — 4-page folder No. 44 describes the new Binks Type H Series of atmospheric spray cooling towers for small packaged water-cooled air conditioning and refrigeration condensing units and related applications. Selection tables, specifications, dimensions and weights are included. Binks Mfg Co, Water Cooling Div, 3114-40 Carroll Ave, Chicago 12, Ill

A7 **UNIT HEATER** — Form No. 1950 features a new compact unit heater weighing only 57 lbs yet capable of delivering sufficient heat for locomotive cabs, power plants, small buildings and similar small areas. Capacities and dimensions are included. Young Radiator Co, Racine, Wis.

A8 **FANS**—2 publications are offered: 80-page book No. DS-348F shows forward curved fans for heating, ventilating, air conditioning and industrial process. Complete with construction features, characteristics, selection data, performance tables, etc. Bulletin No. DS-348U covers the utility fans—trim, compact "package" ventilating units, Trane Co, La Crosse, Wis.

A9 **SPRAY NOZZLES** — 8-page brochure No. 6A-8P furnishes details of design, application, construction, and operation of SK spray nozzles. Pictures recooling spray nozzle systems for use in plants which operate condensers or use large quantities of water for cooling. Schutte & Koerting Co, Dept J-D, Cornwells Heights, Bucks County, Pa.

A10 **COOLING TOWERS** — Pictures sizes types of Hudson TP cooling towers to meet any requirement. Drawings and diagrams show features of advanced design and method of construction. 22-page brochure. Hudson Engrg Corp, Fairview Station, Houston, Texas.

A11 **INDUCED DRAFT AIR** — Shows installation of Hudson air-cooled units for jacket water, gas, steam and hydrocarbon vapor cooling. Photographs show features. 8-page booklet. Hudson Engrg Corp, Fairview Station, Houston, Texas.

A12 **DRY-FAN COOLING TOWERS** — Two 4-page bulletins Nos. 46 and 47 describe Binks No. 2-B Series dry-fan cooling towers with capacity range 3 - 30 tons of refrigeration; and Binks No. 2-BB Series with double inlet squirrel cage duplex blower capacity range 32- 60 tons of refrigeration. Binks Mfg Co, 3114-40 Carroll Ave, Chicago 12, Ill.

A13 **AMMONIA CONDENSERS**—Frick vertical shell-and-tube condensers, Type VS, are featured. Details of construction and typical installations are also given. 8-page bulletin No. 228-E. Frick Company, Waynesboro, Pa.

A14 **DEHUMIDIFICATION** — 4-page humidification for industry concerning problems such as mold, rust, mildew, caking, corrosion, warping, dripping pipes, wet walls, and mustiness. Abbeon Supply Co, 58-10 41st Drive, Woodside, N. Y.

A15 **FANS AND BLOWERS**—30-page catalog No. TMC-171-1500 gives engineering data on series 16 standard and high capacity ventilating fans. The Moore Company, Marceline, Missouri.

A16 **SPACE HEATERS** — Describes Dravo Counterflo direct-fired, warm-air space heaters in a range of gas- or oil-fired models with outputs from 400,000 to 2,000,000 Btu per hr. 8-page bulletin No. 526. Dravo Corp, Heating Dept, Fifth & Liberty Aves, Pittsburgh 22, Pa.

A17 **AIR CONDITIONING**—A planning guide for industrial air conditioning. Discusses five vital functions an air-conditioning system should perform and what to expect from an air-conditioning system. Illustrations, photographs, included. 20-page booklet No. B-5160. Westinghouse Electric Corp, Sturtevant Div, 200 Readville St, Hyde Park, Boston 36, Mass.

A18 **ELECTRONIC AIR CLEANER**—Describes the Precipitron electronic air cleaner. Explains how it operates; why it cleans air efficiently; where it can be used to advantage; how it is constructed; kind of unit to select. 8-page leaflet No. SA-6691. Westinghouse Electric Corp, Sturtevant Div, 200 Readville St, Hyde Park, Boston 36, Mass.

A19 **HEATING SYSTEMS** — Webster Tallmadge zoned controlled heating systems which provide complete heating requirements for hourly, daily and seasonal variations. Manual, full automatic or remote control. Complete description. 8-page bulletin No. WTS-750. Webster Tallmadge Systems, Div of Hoffmann Specialty Co, Indianapolis 7, Ind.

A20 **REFRIGERATION COMPRESSOR**—Detailed description of 2, 3, 5, and 7½ hp hermetically sealed refrigeration compressors and condensing units. Bulletin No. 101-110. Westinghouse Electric Corp, Sturtevant Div, 200 Readville St, Hyde Park, Boston 36, Mass.

A21 **AIR CONDITIONING EQUIPMENT**—Covers equipment needed to do a job of air conditioning: cooling, heating, dehumidifying, cleaning, filtering, circulating; or ventilating; or air handling. 16-page catalog No. SA-6692. Westinghouse Electric Corp, Sturtevant Div, 200 Readville St, Hyde Park, Boston 36, Mass.

BOILERS AND ACCESSORIES

B1 **DUST COLLECTORS** — 4-page folder discusses advantages of Bubar dust collectors for boilers fired with coal, lignite, bark, wood or bagasse. Operation data and illustration are given of the type "S" collector. Bubar Dust Systems Inc, Old Lyme, Conn.

B2 **CENTRIFUGAL BLOWERS** — 12-page booklet No. K-100 gives informative data on McKee centrifugal pressure blowers. Types of construction and applications are illustrated. Velocity pressure table is also given. Eclipse Fuel Engrg Co, Rockford, Ill.

B3 **PROPORTIONING OIL BURNER** —8-page bulletin No. 501 consists of dimensions, capacity tables, shutter and support data plus typical layouts and installations on the Type BI proportioning oil burner. Anthony Co, Long Island City 1, N. Y.

B4 **FEEDWATER CONTROL**—8-page booklet No. S-52 describes and illustrates the Republic single, double and triple element boiler feedwater control system. A comparison of the 3 systems and advantages of each are listed. Republic Flow Meters Co, 2240 Diversey Pkwy, Chicago 47, Ill.

B5 **SPREADER STOKERS** — 4-page publication No. 85 features Chicago Automatic unit drive spreader stokers. Cross-section view shows and lists operating features. A typical installation view is also given. Standard Stoker Co, 370 Lexington Ave, New York 17, N. Y.

B6 **INTEGRAL-FURNACE BOILER** —12-page brochure No. G-72 describes a compact, ready-to-use B&W integral-furnace boiler, Type FM, completely shop-assembled for unit shipment. Capacities, dimensions, and shipping weights of standard sizes are included. Babcock & Wilcox Co, 85 Liberty St, New York 6, N. Y.

B7 **STEAM GENERATORS**—14-page booklet No. B-50-11 points out advantages of the dual circulation steam generator over conventional boilers for power and process steam of super purity. Principles and applications are explained. Foster Wheeler Corp, 165 Broadway, New York 6, N. Y.

B8 **CAR SHAKER** — 4-page leaflet features the National car shaker for unloading material from hopper cars. Several installations are illustrated. National Conveyor & Supply Co, 350 N Harding Ave, Chicago 24, Ill.

B9 **DUST COLLECTOR**—4-page bulletin describes the company's Aerodynamic dust collector which can be used in practically any situation where dust-laden air or gases have to be cleaned either for the recovery of useful or valuable substances, or for elimination of dusts from flue gases and industrial processes. Aerodyne Development Corp, 879 Addison Rd, Cleveland, Ohio.

B10 **STEAM GENERATOR** — Bulletin No. SB-38-10M gives informative data on Erie City Keystone packaged-type water tube steam generator. Dimensions, capacities, and diagrams are included. Erie City Iron Works, Erie, Pa.

B11 **SPREADER STOKER** — 12-page booklet No. B-4764 relates the evolution of Westinghouse stokers from 1888 to the present time. Also tells the story of Westinghouse Centrafire—its development and application to the modern steam generator. Westinghouse Elec Corp, Stoker Dept, Lester Branch P. O., Philadelphia 13, Pa.

B12 **SOOT BLOWER HEAD** — 4-page folder No. 485 describes the new Vulcan P-3 rotary soot blower head for boiler cleaning. Advantages are listed and design features are shown. Vulcan Soot Blower Div, Continental Foundry & Machine Co, Dubois, Pa.

B13 **FEEDWATER CONTROL** — 16-page brochure No. 105-C shows the latest developments in Bailey 3-element feedwater control. Diagrams, cut-a-way views, typical chart records and photographs of modern installations are given. Bailey Meter Co, 1050 Ivanhoe Rd, Cleveland 10, Ohio.

B14 **DUST COLLECTORS** — 38-page catalog contains illustrations and specifications of the complete line of Dustkop pre-tested dust collectors for various types of industrial dusts. Aget-Detroit Co, Ann Arbor, Mich.

B15 **JET PULVERIZER** — 8-page pamphlet No. 2362 presents the Blaw-Knox jet pulverizer, a steam or compressed air operated mill that pulverizes solid materials finer than any other means known to industry. Description of operation, cut-a-way view, and distinctive features are given. Blaw-Knox Co, 2642 Farmers Bank Bldg, Pittsburgh 30, Pa.

B16 **SOOT BLOWERS**—24-page bulletin No. 484 presents a few outstanding Vulcan automatic sequential soot blower installations in central stations. Reports from operators and production departments are listed. Vulcan Soot Blower Div, Continental Foundry & Machine Co, DuBois, Pa.

B17 **PLASTIC FIRE BRICK**—44-page booklet, entitled "The Inside Story of Plastic Fire Brick," consists of advantages, applications, specifications, specialties, and engineering data of plastic firebrick. Laclede-Christy Co, 3600 Forbes St, Pittsburgh 13, Pa.

B18 **COAL CRUSHER**—4-page leaflet features the Gundlach "Two-Stage" coal crusher which incorporates two crushing stages in one machine and is designed to reduce run-of-mine coal to stoker coal in one operation. T J Gundlach Machine Co, Belleville, Ill.

B19 **ASH AND FLYASH HANDLING** —24-page publication gives detailed information on both hydraulic and pneumatic ash and flyash handling systems. Compiled in question and answer form, the booklet discusses elements and advantages of the various systems. Beaumont Birch Co, 1505 Race St, Philadelphia 2, Pa.

B20 **SEAM PROTECTOR** — Circular presents the National seam protector, a refractory tile attachable in sets to seams of riveted HRT boilers to insulate lapped edges of plates from fire-cracking and oxidation. National Boiler Protector Co, 929 Rabolt Bldg, Dayton 2, Ohio.

For copies of catalogs use cards, page 189

B21 **MECHANICAL DRAFT FANS** — 20-page catalog No. 168 contains an extensive line of mechanical draft fans for both forced and induced draft service. Details of construction, drive arrangements and mounting methods, also several performance curves are included. Green Fuel Economizer Co, Inc, Beacon, N. Y.

B22 **STEAM BOILER UNIT** — 8-page bulletin No. 507 features complete, fully automatic, factory-built steam boiler unit. Illustrations, specifications, and dimension data are given. Typical boiler installations are also shown. Johnston Brothers Inc, Ferrysburg, Mich.

B23 **GAS BURNERS**—4-page bulletin No. H-61 gives the highlights of the Series PW McKee piloted Walltite burners. Eclipse Fuel Engineering Company, Rockford, Illinois.

B24 **STEAM GENERATORS** — 4-page folder No. S7-1-50-2500 features C300 steam generators for light oil, heavy oil, gas and combination oil and gas operation. Assembly and foundation plan is included. Cyclotherm Corp, 157 E First St, Oswego, N. Y.

B25 **SPREADER STOKERS**—Publication No. 85 contains several illustrations of Chicago Automatic unit drive spreader stokers. A cut-away view shows operating features. Standard Stoker Co, Erie, Pa.

B26 **SPREADER STOKER** — Folder No. 8030 describes an improved type of spreader, having a forward moving grate that slowly and continuously discharges the ash at the front. Detroit Stoker Co, Detroit, Mich.

B27 **ECONOMIZERS** — 8-page booklet No. 169 describes the Premier Diamond line of economizers. Both cast-iron tube (Type 25) and steel tube (Type 12) economizers are covered in detail. Green Fuel Economizer Co, Inc, Beacon, N. Y.

B28 **FIREBRICK** — Bulletin features Warco brand intermediate-duty and high-heat-duty firebrick. Properties are detailed and general characteristics and uses are specified. Walsh Refractories Corp, Dept W, 101 Ferry St, St. Louis 7, Mo.

B29 **SPREADER STOKER** — Bulletin No. 830 describes spreader stoker with overthrow rotor that provides uniform fuel distribution. Stationary, hand, dumping or power dumping grates. Detroit Stoker Co, Detroit, Mich.

B30 **OIL BURNER PRODUCTS**—Lists and illustrates oil burner products including automatic horizontal rotary burner, steam turbine driven design,

combination gas-oil, semi-automatic, and pressure atomizing types. Gives selector chart, plus specifications and capacities. 16-page catalog. Ray Oil Burner Co, 401-499 Bernal Ave, San Francisco 12, Calif.

B31 **COAL CRUSHERS AND PULVERIZERS**—Shows how coal is split, not crushed, by the firm's rolling ring principle. Contains facts and informative data on American coal crushers and pulverizers. 8-page bulletin. American Pulverizer Co, 1349 Macklind Ave, St Louis 10, Mo.

B32 **PULVERIZERS** — Detailed information about Mikro pulverizers. Includes test grinding and dust collecting data sheets, as well as a list of some of the materials to which Mikros are applicable. 50-page catalog. Pulverizing Machinery Co, Chatham Road, Summit, N. J.

B33 **TUBE-SUPPORTED WALLS** — Describes Bigelow-Liptak tube-supported walls for industrial boilers. Details how walls may be suspended directly from boiler tubes with resulting saving in steel and erection time. Engineering drawings, photographs. 12-page catalog. Bigelow-Liptak Corp, 2842 W Grand Blvd, Detroit 2, Mich.

B34 **COAL PREPARATION**—Features the Baughman Verti-Vane thermal coal dryer for economical, uniform and controlled large-scale drying operations. Assembly drawing included. 6-page bulletin, No. 101-A. Robert Holmes & Bros, Inc, 510-520 Junction Ave, Danville, Ill.

B35 **BOILER FEED CONTROL SYSTEMS**—Illustrates and describes three types of boiler feed control systems used in different plants of the Georgia Power Co. Bulletin No. 489 Northern Equipment Div, Continental Foundry & Machine Co, Erie 2, Pa.

B36 **BLOWERS** — Dimensional information on the Standardaire blowers including: engineering layout; application and design data; and rating. 6-page bulletin. Standard Stoker Co, Inc, 370 Lexington Ave, New York 17, N. Y.

B37 **PLASTIC REFRACTORY** — Ironton Nojoint, a modern plastic refractory, is described as ideal for rammed-in walls and baffles of boiler furnaces. Cross-section drawings show typical applications in hand-fired, stoker-fired and oil-fired boiler furnaces. 4-page bulletin No. 100. Ironton Fire Brick Co, Ironton, Ohio.

B38 **SPREADER STOKERS**—Data on Laclede universal spreader stokers including advantages and installations. 4-page bulletin No. 5110MS. Laclede Stoker Co, 4438 Hunt Ave, St Louis 10, Mo.

B39 **OIL BURNER** — Describes the Hauck long-nose-type low-pressure air atomizing oil burners for applications where the burner nozzle must extend into the furnace for some distance so that the flame will start farther away from the firing wall. Burns any grade of fuel oil. Sizes and dimensions. Form No. 412. Hauck Mfg Co, 124-136 Tenth St, Brooklyn 15, N. Y.

B40 **FIRE BRICK**—Presents economic advantages, industrial applications and refractory properties of JM-3000 insulating fire brick for sustained use at 3000F. Physical and thermal characteristics given in table form. 4-page bulletin. Johns-Manville, 22 E 40th St, New York 16, N. Y.

B41 **ASH-HANDLING SYSTEMS** — A discussion of Hydrojet ash-handling systems including basic arrangements and advantages; types for different furnaces and replacement installations; operating and construction advantages, disposal systems. 20-page brochure No. 251. Allen-Sherman-Hoff Co, 225 S 15th St, Philadelphia, Pa.

B42 **COAL CRUSHERS**—Covers complete line of Jeffrey coal crushers for sizing coal to meet the requirements of coal mines, power plants, railroads, industrial and processing plants. Includes features of operation and construction, typical installations. 38-page catalog No. 784-A. Jeffrey Mfg Co, 956 N 4th St, Columbus 16, Ohio.

B43 **DUST PRECIPITATORS** — Describes latest line of dust precipitators designed to handle fly ash, cinders and industrial dust. Includes operation details, selection data, performance factors, efficiency curves, etc. 12-page bulletin No. 1728. American Blower Corp, Dept D-9, Detroit 32, Michigan.

B44 **REFRACTORIES**—Discusses machine-made cupola blocks of Kentucky flint and semi-flint clay. Ironton ladle pouring brick and bottom tile are described as practical solutions for foundry problems. Cupola specialties also illustrated. 4-page folder No. 101. Ironton Fire Brick Co, Ironton, Ohio.

CONTROLS, ELECTRIC

D1 **MOTOR STARTERS** — 8-page booklet No. B-4379 presents Slipsyn synchronous motor control for operation and protection of all types of synchronous motor drives. Photographs keyed to line drawings explain operation of these starters and point out their features. Westinghouse Elec Corp, Box 2099, Pittsburgh 30, Pa.

D2 **MOTOR CONTROL**—4-page brochure No. 650 discusses the Ideal wound-rotor induction motor control for centifugal compressor drives. One line and functional diagram is shown. Engineering data and description are also furnished. Ideal Electric & Mfg Co, Mansfield, Ohio.

D3 **MERCURY RELAYS** — 4-page folder illustrates and lists the firm's line of heavy-duty 1-, 2- and 3-pole mercury plunger relays and sensitive relays. Contains prices, relay hookups and dimensional diagrams. Ebert Electronics Corp, 185-09 Jamaica Ave, Hollis 7, N. Y.

D4 **HYDRAULIC REMOTE CONTROLS**—8-page booklet No. 20-105 describes 2 series of hydraulic remote controls and available accessories, including intermediate transmitter for use at secondary-control stations. Industrial Sales Section, Sperry Products Inc, Danbury, Conn.

D5 **LEVEL CONTROL**—4-page leaflet gives principle of operation and special applications of the Belmont level control. Illustrations are included. Thermo Instruments Co, Belmont, Calif.

D6 **FREQUENCY CONTROLS** — Illustrates and describes in detail all standard types of Polarized field frequency synchronous motor controls for full-voltage, reduced-voltage, and part-winding starting. Ratings, weights, dimension drawings, wiring diagrams, layout drawings, and specifications for each control given. 8-page bulletin No. 3100-PRD-204. Electric Machinery Mfg Co, Minneapolis 13, Minn.

D7 **AC RELAYS** — Information on power-type ac voltage sensitive relay including: features, application, description, operation principles, characteristics, contact ratings and dimensions. 2-page bulletin No. 401. Ward Leonard Electric Co, 31 South St, Mount Vernon, N. Y.

To order catalogs, use cards on page 189

CONTROLS, MECHANICAL

E1 **RATIO TOTALIZER**—8-page publication No. 5450 describes and illustrates 12 suggested applications of the Hagan ratio totalizer, a pneumatically operated control mechanism for accurately combining input control pressures and spring forces to produce a single output control pressure. Hagan Corp, Hagan Bldg, Pittsburgh 30, Pa.

E2 **HOT WATER CONTROLS** — 8-page bulletin No. F-3157-1 contains comprehensive design data that facilitates the selection of automatic temperature controls for hot water heating systems. Barber-Colman Co, Rockford, Ill.

E3 **STEAM PUMP SPEED GOVERNOR** — 8-page bulletin and instruction sheet No. 603 describes the operation and applications of a speed governor and control valve that limits the speed of reciprocating steam pumps to a set valve. Mason-Neilan Regulator Co, 1190 Adams St, Boston 24, Mass.

E4 **LIQUID LEVEL CONTROL** — 4-page bulletin No. 1500 tells how to get more water with fewer pump operations from any tank pressure with Autocon Duotrols, the combination pump and air control which holds level accurately and maintains pressure exactly. Automatic Control Co, 1005 University Ave, St. Paul 4, Minn.

E5 **PRESSURE AND TEMPERATURE REGULATORS** — 32-page booklet contains useful information about pilot-operated pressure and temperature regulators. Case example problems are cited to help users select correct types and sizes. Photos, charts and tables are included. Spence Engrg Co, Walden, N. Y.

E6 **ELECTRONIC COMBUSTION CONTROL**—8-page bulletin No. 1100 describes a new electronic master combustion control system and tells how it operates. Contains many photos and diagrams. Republic Flow Meters Co, 2240 Diversey Pkwy, Chicago 47, Ill.

E7 **TEMPERATURE MONITOR**—10-page publication gives informative data on the Edison critical temperature monitor which provides a dependable means of automatic, frequent, and regular temperature checking at selected locations in mechanisms, spaces, or processes. Thomas A. Edison Inc, Instrument Div, West Orange, N. J.

E8 **DRAFT CONTROL SYSTEMS** — Three bulletins are offered covering draft control systems. No. 5 is for gas burners; No. 6 for oil burners; and No. 7 for stokers. Applications and wiring suggestions are given. Perfex Corp, 500 W Oklahoma Ave, Milwaukee 7, Wis.

E9 **LIQUID LEVEL CONTROL** — Form No. 7500 presents the Autocon Hi-Level safety switch designed to operate either audible or visual alarms. Suitable for elevated tanks, sumps, vats, industrial processing, etc. Automatic Control Co, 1005 University Ave, St. Paul 4, Minn.

E10 **LIQUID LEVEL CONTROLS**—Explains reasons for using two bellows for control instead of ordinary single bellows design in Autocon Tanktrols. Specifications and results are listed. 4-page bulletin No. 1100. Automatic Control Co, 1005 University Ave, St Paul 4, Minn.

E11 **METAL BELLOWS** — Flexon bellows available in complete range of sizes and metals. Specially suited for applications of control devices and instrumentation. Bellows can be provided with variety of fittings and attachments. 16-page bulletin No. 1316. Chicago Metal Hose Corp, S Third Avenue, Maywood, Ill.

E12 **PRESSURE REGULATION** — 4-page technical bulletin No. 105 defines the basic differences between

flowing service and dead end regulation. Also presents suggested tests, capacity charts, etc. Conoflow Corp, 2100 Arch St, Philadelphia 3, Pa.

E13 LIQUID LEVEL CONTROL — 4-page folder No. 1200 discusses Autocon Mototrols, pressure operated pump controls, with twin bellows for elevated tank systems. Construction features and applications are listed. Automatic Control Co, 1005 University Ave, St Paul 4, Minn.

E14 TEMPERATURE CONTROL—Describes the Wheelco Model 292 Capacitrol, a self-contained indicating deflection-type instrument for measurement on automatic control of temperatures on any type of heating equipment. Price list. 4-page bulletin No. 292-1. Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

E15 CENTRALIZED CONTROL—Discusses new Multitrol control centers designed for accommodating any control system up to 600 volts, using components not larger than NEMA size 5. Types and specifications given. 4-page bulletin No. 4410. Ward Leonard Electric Co, 31 South St, Mount Vernon, N. Y.

E16 COMBUSTION CONTROLS — Latest information, description, specifications and photographs of Cleveland combustion instruments and controls. Also gives a full description of the new master regulator, the Model SC-B steam control. 12-page catalog No. 5M51C512H Cleveland Fuel Equipment Co, 7316 Associate Ave, Cleveland 9, Ohio.

E17 TEMPERATURE CONTROL — Data on the Wheelco Capaciline, a supplementary straight-line control device which anticipates the fuel needs of controlled heating equipment. Form No. CL-1. Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

E18 PUMP CONTROL—Data on Autocon multi-pump Mototrols, pressure operated pump controls for elevated tank systems with 2 or more pumps. 4-page bulletin No. 1210. Automatic Control Co, 1005 University Ave, St. Paul 4, Minn.

E19 FLAME SCANNER — Describes the Firetron, a fireye that is used with flame-failure safeguards to protect against the danger of explosion due to flame failures in oil-, gas-, or pulverized coal-fired furnaces. 8-page bulletin No. CP511. Combustion Control Corp, 77 Broadway, Cambridge 42, Mass.

E20 TEMPERATURE CONTROL — Lists mercury actuated Thermoregulators and thermostats which may be selected according to accuracy requirements from plus or minus 0.005 deg C to plus or minus approximately 0.1 deg C. Illustrated with photos and cut-away drawings. 12-page catalog No. 18. H-B Instrument Co, Dept TR, 2633 Trenton Ave, Philadelphia 25, Pa.

E21 AUTOMATIC CONTROLS — Contains complete coverage of controls for domestic heating applications; controls for various industrial applications; and magnetic and motorized valves. Illustrations, sizes, dimensions, and prices given on each item. 64-page catalog No. 700. Mercoid Corp, 4201 Belmont Ave, Chicago 41, Ill.

ELECTRICAL EQUIPMENT

F1 SWITCHGEAR—20-page booklet No. 18B6185A covers all types of Allis-Chalmers switchgear, indoor or outdoor, with removable or stationary circuit breakers; switchboards of all types; "Ruptair" replacement units; and multi-circuit, single-circuit and load center unit substations. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

F2 DISCONNECTING SWITCHES — 8-page bulletin No. B-4726 contains the company's complete line of indoor and outdoor air-disconnecting switches. High lights on design and operation of these switches, as well as application information to simplify selection, are included. Westinghouse Electric Corp, P O Box 2099, Pittsburgh 30, Pa.

F3 SYNCHRONOUS MOTORS — 4-page folder No. 44-200 describes the firm's expanded line of low-speed synchronous motors. They are available in ratings 20 hp and larger—450 rpm and below—with bracket, pedestal or engine-type construction. Electric Products Co, 1725 Clarkstone Rd, Cleveland 12, Ohio.

F4 SOLDERLESS CONNECTORS — 4-page brochure No. 750 furnishes detailed descriptive data, installation instructions and ordering information on Buchanan "pres-Sure-connectors" for soldering, splicing and terminating of electrical wires. Buchanan Electrical Products Corp, 1290 Central Ave, Hillside, N. J.

F5 DRY-TYPE TRANSFORMERS — 23-page booklet No. B-4428 shows reasons why dry-type transformers are safer and less expensive to install and maintain in industrial plants, mines, utilities, etc. Types of air-cooled transformers for every use are also illustrated. Westinghouse Electric Corp, P O Box 2099, Pittsburgh 30, Pa.

F6 MOTORS AND GENERATORS — 12-page catalog No. 505 presents features of medium- and high-speed Ideal synchronous motors and generators. Engineering information and data are included. Ideal Electric & Mfg Co, Mansfield, Ohio.

F7 SELF-LUBRICATED MOTORS—4-page folder No. 1579 discusses the company's Lubrifloah principle in electrical motors, showing how bearings can be lubricated for life and also can be purged of old lubricant and renewed without disturbing the bearing housing. U. S. Electrical Motors Inc, 200 E Slauson Ave, Los Angeles 54, Calif.

F8 ELECTRICAL DISTRIBUTION — 60-page catalog No. 25 discusses a modern, all-purpose trolley busway system of electrical distribution that provides outlets for power or light anywhere and everywhere along its entire length, always ready for use. Contents contain features and advantages, range and scope, general specifications, installation data, etc. Feedrail Corp, 125 Barclay St, New York 7, N. Y.

F9 POWER FACTOR CORRECTION —4-page leaflet No. 15B-7465 sets forth examples illustrating basic considerations in the improvement of system power factor. Reasons why synchronous motors and condensers improve the power factor are graphically presented. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

F10 GEARMOTORS — 4-page bulletin No. B250 describes Abart right-angle type gearmotors from 1/6 to 5 hp with ratios of 5-4/5-1 to 100-1. Output speeds are from 17.5 rpm to 302 rpm. Abart Gear and Machine Co, 4828-4836 W 16th St, Chicago 50, Ill.

F11 TRANSFORMERS — 16-page bulletin No. 01B616B gives design and construction features of Allis-Chalmers' power and distribution transformers, both large and small and secondary network. Also discusses step regulators, pole-type regulators, unit substation and instrument transformers. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

F12 SERVO-MECHANISM PARTS — 12-page bulletin entitled "Arma Synchro Units," describes 6 new miniature servo-mechanisms, which are included in 2 groups of electromagnetic units for transmitting electrically a continuous, accurate indication of angular position. Arma Corp, 254 36th St, Brooklyn 32, N. Y.

F13 LIGHT DIMMERS—16-page bulletin No. 76 discusses radiastat and autrastat dimmer, modern lighting control. Gives features, construction, operation, and dimensions. Ward Leonard Electric Co, 31 South Street, Mount Vernon, N. Y.

F14 DC MOTORS — 12-page bulletin No. C-2001 presents design, construction, selection, and ordering information together with frame dimensions, for Type T heavy-duty, constant and adjustable-speed dc motors. Reliance Electric & Engrg Co, 1088 Ivanhoe Rd, Cleveland 10, Ohio

To order catalogs, use cards on page 189

F15 COMBUSTION SAFEGUARD—Describes Protectoglo combustion safeguard for industrial gas- and oil-fired burners. Includes data on new flame-rectification principle of operation, installation, drawings, price list, ect. 32-page catalog No. 9601. Minneapolis-Honeywell Regulator Co, Industrial Div, Wayne & Windrim Aves, Philadelphia 44, Pa.

F16 CIRCUIT BREAKERS — 12-page bulletin No. 3410 presents fully magnetic non-thermal, non-enclosed, general-purpose circuit breakers. Illustrations, charts, diagrams, graphs and cut away views portray the Heinemann line of 1-, 2-, and 3-pole breakers for general industrial use. Heinemann Electric Co, Trenton 4, N. J.

F17 UNIT SUBSTATION—8-page bulletin No. 11B7457 features Allis-Chalmers single circuit unit substation designed for practical distribution service and arranged for maximum accessibility and easy maintenance. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

F18 POWER AND CONTROL CABLES —60-page catalog gives complete technical data, descriptions, and recommended uses for all Rome power and control cables. Special power problems are given consideration and test data are presented. Rome Cable Corp, Rome, N. Y.

F19 PRE-LUBRICATED MOTORS — 4-page folder No. 2201 gives informative data on Reliance pre-lubricated bearing design in electric motors. Contains descriptive sketches, cutaway drawings of improved double shielded bearings and their bracket mounting, etc. Reliance Electric & Engrg Co, 1088 Ivanhoe Rd, Cleveland 10, Ohio.

F20 POWER CABLE—Booklet No. 19-150 discusses GE's Super Coronol-Geoprene power cable for circuits up to and including 15,000 volts. Charts and tables on physical and electrical properties, splicing and terminating instructions, specification data, and application recommendations are given. Construction Materials Dept, General Electric Co, Bridgeport 2, Conn.

F21 INDUCTION MOTORS — 8-page brochure No. 05B7550 contains construction features of Allis-Chalmers large 2-pole squirrel-cage induction motors. A cross-section view of a typical normal torque, low-starting current motor is given. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

F22 DISTRIBUTION TRANSFORMERS—4-page folder No. 50-FC features air-cooled distribution transformers, lighting transformers, power center and packaged-power units. Marcus Transformer Co, 32-34 Montgomery St, Hillside 5, N. J.

F23 DISTRIBUTION CENTERS — 8-page catalog No. GEA-5571 covers the G-E Inductrol Power Packs for ac lighting and power service—15 to 100 kva capacity. Ratings, weights, and prices are given for single- and 3-phase packaged regulating equipment. General Electric Co, Apparatus Dept, Schenectady, N. Y.

F24 DC MOTORS AND GENERATORS—19-page booklet No. B-4595 tells about the new Life-Line type SK dc motors and generators. Describes types, enclosures, and mountings for many different applications. Westinghouse Electric Corp, P O Box 2099, Pittsburgh 30, Pa.

F25 PACKAGED GENERATORS — 16-page bulletin No. 2100-PRD-202 gives the inside story on the "why" and "how" of E-M packaged generators (3.75-187 kva). Helpful electrical information, charts, graphs, and illustrations are included. Electric Machy Mfg Co, 1331 Tyler St, NE, Minneapolis 13, Minn.

F26 LIGHTING EQUIPMENT — 24-page catalog No. MF contains complete line of lighting equipment for Slimline fluorescent lamps. Installation data, dimensions, prices, etc. are given. Benjamin Electric Mfg Co, Des Plaines, Ill.

F27 LIGHT FIXTURES—4-page folder No. 1050 contains a complete listing of all RLM manufacturers and the RLM-certified lighting equipment made by each. RLM Standards Institute, 326 W Madison St, Chicago 6, Ill.

F28 SYNCHRONOUS GENERATORS —Covers generators for standby, portable, and prime-source power in ratings from 1.875 to 50 kva with frequencies of 60 and 400 cycles. Includes photographs, construction features and comparison table of ratings. 4-page bulletin No. GEA-5470. General Electric Co, Schenectady 5, N. Y.

F29 MOTORS AND CONTROLS—Describes 600 Series mill motors and Class 9500 dc magnetic mill auxiliary controllers. Design features and construction details discussed with sections devoted to armatures, bearings, field coils, brushholders, ventilation. 20-page booklet No. B-4730. Westinghouse Electric Corp, Box 2099, Pittsburgh 30, Pa.

F30 MOTORS AND GENERATORS — 16-page booklet describes induction motors and generators for instrumentation and control work. Includes 5 new types. Typical specifications performance curves, and outline drawings given. Arma Corp, 254 36th St, Brooklyn 32, N. Y.

F31 LIGHTING EQUIPMENT—Booklet, entitled "Your Lighting Simplified," contains helpful information for proper selection and purchase of lighting equipment. Edwin F Guth Co, 2615 Washington Ave, St Louis 3, Mo.

F32 STOCK LIST — 16-page current catalog 1622 lists rebuilt motors, generators, mg sets, automatic starters, gear reducers, magnetic starters, pumps, transformers, etc. Electric Generator & Motor Co, 4519 Hamilton Ave, Cleveland 14, Ohio.

F33 DIRECT CURRENT MOTORS — 4-page bulletin No. 39-200 describes direct-current motors, their motor designs and parts. The Electric Products Co, 1725 Clarkstone Road, Cleveland 12, Ohio.

F34 DC GENERATORS—4-page publication No. B41-200 contains informative data and illustrations of the company's expanded line of dc generators for lighting and power supplies. Electric Products Co, 1725 Clarkstone Rd, Cleveland 12, Ohio.

F35 TRANSFORMERS, REACTORS AND FILTERS — 28-page catalog No. 500 contains complete listing of UTC's line of transformers, reactors and filters. It includes descriptions, applications, specs, amplifier circuits, curves and charts. United Transformer Co, 150 Varick St, New York 13, N. Y.

F36 VIBRATOR CONVERTERS — 32-page booklet No. 410 gives comprehensive and detailed information on the company's line of Powercon vibrator converters. 22 models in five different types are covered—ac and dc converters, battery chargers and eliminators, dc to dc converters, etc. Cornell-Dubilier Electric Corp, South Plainfield, N. J.

F37 DC MOTORS — 12-page bulletin No. C-2001 presents design, construction, selection, and ordering information together with frame dimensions, for Type T heavy duty, constant and adjustable speed dc motors. Reliance Electric & Engrg Co, 1088 Ivanhoe Rd, Cleveland 10, Ohio.

F38 VARIABLE TRANSFORMER — 4-page folder No. 1503 describes newly redesigned Powerstat variable transformer Types 116 and 216. New mechanical and electrical improvements are all within the old mounting dimensions. Superior Electric Co, Hannon Ave, Bristol, Conn.

F39 POLYPHASE MOTORS — 10-page bulletin No. EM4-812 polyphase 1 to 75 hp horizontal electric motors, illustrating construction details in cross section and cutaway views. Among the features described are motor appearance, insulation, bearings, ventilation, mounting, service, frames and end bells. A O Smith Corp, Motor Div, Los Angeles 22, Calif.

F40 ELECTRICAL ENCLOSURES — 16-page booklet No. EE contains over 40 illustrations plus descriptions of custom built sheet metal electrical enclosures. The Kirk & Blum Mfg Co, 2834 Spring Grove Avenue, Cincinnati, Ohio.

F41 INDUSTRIAL LIGHTING — 44-page booklet, revised edition of "RLM Standard Specifications for Industrial Lighting Units." It contains four new specifications which utilize T-12 slimline fluorescent lamps, and revisions of existing RLM specifications including increase in mean reflection factor on 12 different units from 79% to 82%. RLM Standards Institute, 26 W Madison St, Chicago 6, Ill.

F42 MAGNET WIRE—32-page booklet No. 19-329 gives complete information on Formex and Deltabeston magnet wires. Combines listing of both film-type and asbestos and glass-insulated magnet wires, and fully covers the development, properties, applications, advantages, and available sizes of these wires. General Electric Co, Bridgeport 2, Conn.

F43 SAMPLE APPLICATIONS — 8-page pictorial presentation of what industry is currently doing to modernize machine designs and production lines to meet today's highly competitive conditions through greater plant production and improved quality. Sterling Electric Motors, Inc, 5401 Anaheim, Telegraph Road, Los Angeles 22, Calif.

F44 LOW SPEED ALTERNATORS — Describes several of the company's diesel-engine alternator installations with single units ranging in capacity from 125 to 2000 kva. Also included is a list of the company's offices in the U.S. 8-page bulletin No. 510. Ideal Electric & Mfg Co, Mansfield, Ohio.

F45 ELECTRICAL CONNECTORS — Contains an illustrated listing of Burndy Hydent electrical connectors and installation tools for all industrial, manufacturing and aircraft use, with full instructions for their selection. 24-page catalog No. Y53. Burndy Engrg. Co, Inc, 107 Bruckner Blvd, New York 54, N. Y.

F46 INSTRUMENT PANELBOARDS—Gives data on Falstrom instrument panelboards. Designed in several sizes, with accessories for easy installation, they can be used singly or grouped for almost any type of installation. 4-page bulletin No. 143. Falstrom Co, 99 Falstrom Court, Passaic, N. J.

F47 AUTOMATIC TRANSMISSIONS—Two single-sheet forms. One describes Western 2-speed transmissions used to supplement constant-speed and multi-speed motors. The other describes the new Western 420 transmission including full engineering dimensions and specifications. Western Mfg Co, 3400 Scotten Ave, Detroit 10, Mich.

F48 SYNCHRONOUS GENERATOR—Bulletin, "Hydraulic Turbine-Driven Synchronous Generators and Large Vertical Motors," compares suspended and umbrella types of vertical generators. Shows advantages of enclosed construction using air-to-water heat exchangers. Also discusses horizontal generators. 32-page bulletin No. 05B7549. Allis-Chalmers Mfg Co, 953 S 70th St, Milwaukee, Wis.

F49 FAN-COOLED MOTORS—Data on Wagner Type EP and JP polyphase squirrel-cage motors designed for use on applications requiring totally enclosed fan-cooled construction. Built in ratings from 2 to 250 hp. 4-page bulletin No. MU-132. Wagner Electric Corp, 6400 Plymouth Ave, St. Louis 14, Mo.

F50 POWER TRANSFORMER — Describes application of the CSP power transformer as a completely packaged, single-feeder substation. Available in ratings from 300 to 3,000 KVA at high voltages of 69 kv and below, and low voltages of 1501 to 15,000 volts. 16-page bulletin No. B-4692. Westinghouse Electric Corp, Box 2099, Pittsburgh 30, Pa.

F51 INDUCTION MOTORS — Presents a quick summary of the types and features of 2 basic kinds of induction motors—Type CSF squirrel-cage for constant speed drive, and Type CWF wound-rotor motors for adjustable speed drive. 28-page booklet No. B-4739. Westinghouse Electric Corp, Box 2099, Pittsburgh 30, Pa.

★ **CIRCUIT BREAKERS**—Gives information on a complete line of fully magnetic, non-thermal circuit breakers for general use, auxiliary circuit protection, panel-board applications, etc. 12-page catalog. Heinemann Electric Co, Trenton, N. J. (*Write direct to manufacturer on company stationery giving name and title.)

F52 CALENDER DRIVES — Information on adjustable-speed calender drives for calendering rubber, plastics and similar materials. Includes dimensions and hp ratings, photos, charts and diagrams, and an outline of uses and advantages. 8-page bulletin No. GEA-5588. General Electric Co, Apparatus News Bureau, Schenectady 5, N. Y.

F53 TRANSFORMERS—Gives a complete listing of all capnut, disconnecting, and straight-through potheads. Single-conductor potheads and 16 standard shapes of multiple-conductor potheads are listed in ratings from 600 to 34,500 volts. Installation directions also given. 72-page bulletin No. AB51. G&W Electric Specialty Co, 7780 Dante Ave, Chicago 19, Ill.

F54 MOTOR PROTECTION — Stresses 3-way protection — interlinked protection of circuits, motors, and personnel—for squirrel-cage, synchronous, wound-rotor, and multi-speed motor installations. 12-page booklet No. DB-4673. Westinghouse Electric Corp, Box 2099, Pittsburgh 30, Pa.

HEAT EXCHANGERS

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G1 FEEDWATER HEATER—Single-sheet form No. S-201-A presents the new all-steel Swartwout junior feedwater heater for preheating feedwater supply in small power plants of 300 hp or less. Specifications and shipping weights are listed. Swartwout Co, 18511 Euclid Ave, Cleveland 12, Ohio.

G2 OIL COOLER — Form No. 1250 tells about the specially designed "A-800" shell and tube bundle heat exchangers developed for oil cooling in diesel locomotive, diesel engine, gasoline engine, and similar applications. Young Radiator Co, Racine, Wis.

G3 HOT WATER HEATER—4-page leaflet No. SM-41 gives ratings and specifications for 5 sizes of O'Brien all-bronze "packaged" steam-mixer water heaters for 50 to 125 lbs steam pressure. O'Brien Steam Specialty Co, 393 Heffernan Bldg, Syracuse 2, N. Y.

G4 **WATER HEATER**—4-page folder No. WH-12 points out the features of the compact Pick instantaneous steam injection heater. Also shows a simple cost-check table which promotes comparison between various heating methods. Pick Mfg Co, Heater Div, West Bend, Wis.

G5 **ENGINE COOLERS** — 4-page folder No. 1651 shows Young Mono-Weld radiators having one-piece and sectional-type cores. Designed for heavy-duty gas, gasoline and diesel engine cooling. Young Radiator Co, Racine, Wis.

G6 **OIL AND WATER COOLER** — Describes a new design oil and water cooler — LK-Fin cooler which uses helically-finned heat transfer elements instead of conventional bare tubes. Selection data, dimensions and specifications for standard sizes are given. 19-page bulletin No. 1020. Griscom-Russell Co, 285 Madison Ave, New York 17, N. Y.

G7 **EVAPORATORS**—4-page bulletin No. 40A tells about Paracoil evaporators and their conversion to modern low pressure vacuum type distillation plants. Photographs, cycle diagrams of single and double effect plants, and performance data are included. Davis Engrg Corp, 1064 E Grand St, Elizabeth, N. J.

G8 **CONDENSER TUBES**—Brochure, entitled "Life Extension for Condenser Tubes," reports on long research done on causes of corrosion and means of combating them, as well as on the choice of condenser tube materials. Tables give estimating data for condenser and heat exchanger tubes in various alloys. 28 pages. Revere Copper & Brass Inc, 230 Park Ave, New York 17, N. Y.

G9 **STEAM-WATER DIFFUSER**—Illustrates and describes the new O'Brien all-bronze steam-water diffuser, designed for quiet mixing of steam and water to produce hot water. Diffuser also efficient for open-tank heating. 1-page catalog sheet. O'Brien Steam Specialty Co, Inc, 393 Heffernan Bldg, Syracuse 2, N. Y.

G10 **HEAT TRANSFER EQUIPMENT**—Shows representative items of the Patterson-Kelley line of heat transfer equipment, blenders and process vessels such as kettles, mixers, autoclaves, etc. 4-page catalog No. 10. Patterson-Kelley Co, Inc, 108 Warren St, East Stroudsburg, Pa.

G11 **FILM-TYPE HEAT EXCHANGERS**—Vogt film-type heat exchangers of vertical, single tube-pass design described. Shows typical installations in a chemical, power and compression plant. 8-page bulletin No. HE-7. Henry Vogt Machine Co, 1000 W Ormsby St, Louisville 10, Ky.

G12 **FREON COOLER**—Discusses the P-K dry expansion type freon cooler designed for use with water and other fluids for air conditioning, refrigeration, industrial and process cooling applications. Selection data, dimensions, charts and tables are included. 12-page catalog No. 101. Patterson-Kelley Co, Inc, 108 Warren St, East Stroudsburg, Pa.

MAINTENANCE AND SAFETY EQUIPMENT

K1 **OIL FILTERS** — 8-page brochure covers Blackburn-Smith line of industrial and marine filters including the following 2 types: The Refiner, designed for extremely fine filtration and for removal of both emulsified and free oil from condensate; the Standard water filter and grease extractor for general service where emulsified oil is not present in the condensate. Blackburn-Smith Mfg Co, Inc, 95 River St, Hoboken, N. J.

★ **VAPOR PURIFIER**—8-page engineering manual for selection of high efficiency purifiers for vapor, steam, gas and air applications. Contains formulas used to calculate volume, actual flow, velocity, and pressure drop. Centrifix Corp, 3629 Payne Ave, Cleveland 14, Ohio. (*Write direct to manufacturer on company stationery giving name and title.)

K2 **OIL FILTERS**—16-page bulletin No. 30041 deals with oil filters, their purpose, makeup, and qualities to be looked for in a filter. A brief history of lubrication is presented. Caterpillar Tractor Co, Peoria 8, Ill.

K3 **LUBRICATION EQUIPMENT** — 14-page 1951 industrial catalog illustrates and describes Universal hydraulic grease fittings, couplers, swivel couplers, control handle for boosting grease pressures up to 12,000 lbs, and top oiler for upper cylinder lubrication. Universal Lubricating Systems, Inc, 791 Allegheny Ave, Oakmont, Pa.

★ **BEARING MAINTENANCE** — Publication, Vol 1 No. 1, is offered of a continuing study of bearing maintenance techniques and successful maintenance, installation and removal procedures. Filer folder also available. Anti-Friction Bearing Distributors Assn, 1900 Euclid Ave, Cleveland 15, Ohio. (*Write direct on company stationery giving name and title.)

K4 **DRY FIRE EXTINGUISHER** — Technical bulletin No. 9 explains the effect of dry chemical in putting out fires in electric motors and generators. Ansul Chemical Co, Fire Extinguisher Div, Stanton, Marinette, Wis.

K5 **GROUND RESISTANCE** — 20-page booklet No. 25-24 gives informative data on Megger ground testing instruments for measuring resistance of earth to ground connections. James G Biddle Co, 1316 Arch St, Philadelphia 7, Pa.

K6 **LUBRICATING OILS** — 12-page pamphlet tells how Sunvis H D 700 oils keep machines clean, prevent rusting, withstand heavy bearing loads, provide long service life, do not foam, and simplify inventories. Sun Oil Co, Philadelphia 3, Pa.

K7 **OILERS' SAFETY CHART**—9x6-in. safety chart for oilers lists 15 "things to remember" when lubricating machinery. Printed on heavy card stock suitable for hanging in a prominent position. New York & New Jersey Lubricant Co, 292 Madison Ave, New York, N. Y.

K8 **MACHINIST VISE**—4-page bulletin No. A-601 contains full information about the new Dodge Slide-Set vise, a powerful, rugged tool that grips like a conventional vise, but eliminates handle spinning. Dodge Mfg Corp, Mishawaka, Ind.

K9 **PHASE INDICATOR** — Data sheet No. 7A explains characteristics and uses of a pocket-size phase sequence indicator. Actual-size photo and price are given. Associated Research Inc, 3770 W Belmont Ave, Chicago 18, Ill.

K10 **METAL INSPECTION** — 4-page folder No. 500 shows how Dy-Check, the dye penetrant method of metal inspection, simplifies non-destructive testing. Dy-Check Co, 1515 E Broadway, Hawthorne, Calif.

K11 **PIPE CUTTER** — 4-page flier covers the Beaver 102-PD pipe cutter designed for use with any make of pipe-cutting power drive. Also described is the Beaver No. 77 threader, a quick-opening, adjustable, ½-2-in. pipe threader designed for use with modern electric power drives. Beaver Pipe Tools Inc, Warren, Ohio.

K12 **INDUSTRIAL APRONS** — 4-page catalog No. 12010 describes Koroseal lightweight, resistant scuffing aprons. Describes, also, aprons made of different types of rubber for their particular usages, including light and heavy duty. B. F. Goodrich Co, Akron, Ohio.

K13 **INDUSTRIAL TOOLS** — 20-page bulletin No. PE50 illustrates and describes new tools designed to accomplish difficult removing and replacing operations without costly, irreplaceable parts. Owatonna Tool Co., 378 North Cedar St, Owatonna, Minn.

K14 **FIREPROOF DOOR** — 4-page brochure describes a new wood-faced fireproof door with a fire rating for Class B and C openings from Underwriters' Laboratories. Door has inorganic core which does not burn, is rot and vermin-proof. Kaylo Div, Owens-Illinois Glass Co, Toledo 1, Ohio.

K15 **SEALING RING** — 3-page folder No. 137-C. describes FlexoSeals, now standard equipment for Frick enclosed-type ammonia, Freon-12 and booster compressors. Frick Co, Waynesboro, Pa.

K16 **TUBE BENDERS** — 60-page catalog No. 50 pertains entirely to bending, warehousing and fabricating of pipe and tubing. Photographs and specifications are included. Wallace Supplies Mfg Co, 1300 Diversey Parkway, Chicago 14, Ill.

K17 **OIL TESTING EQUIPMENT** — 2 publications are offered. Circular No. 70 illustrates the Gerin kit for acidity tests and gives list price. Bulletin No. 300 features the oil inspection kit which provides test for asphalt and other gummy materials; dirt, scuff metal, other sediment and water; acidity; and for fuel dilution and viscosity. Gerin Corp, Red Bank, N. J.

All literature designated with a star (★) may be obtained only by writing direct to the manufacturer on company letterhead, giving writer's name and title.

★ **TOOL MAINTENANCE** — 20-page booklet, entitled "Care of Drills and Reamers," shows how greater life can be obtained from cutting tools. Recommendations also cover the field of tungsten carbide tools, in addition to those made from high speed steels, etc. Chicago-Latrobe, 411 W Ontario St, Chicago 10, Ill.

K18 **FUEL OIL TREATMENT**—Folder outlines benefits, economy and money-saving attributes of instant-acting Sabanol, the homogenizing fuel oil treatment which is non-toxic and non-explosive. American Sand-Banum Co, 9 Rockefeller Plaza, New York 20, N. Y.

K19 **CONCRETE FLOOR REPAIR** — 8-page bulletin No. MQ-1 illustrates application of Masterquick, an iron asphalt patching material which makes possible easy, fast patching or resurfacing of worn concrete floors. Master Builders Co, Cleveland 3, Ohio.

K20 **PIPE AND BOLT MACHINES**—Pictures and describes features of portable pipe and bolt machines, power drivers, as well as the pipe cutter and pipe threader designed for use with electric power drives. Brochure No. PM-150. Beaver Pipe Tools, 350-650 Dana Ave, Warren, Ohio.

K21 **HYDRAULIC OIL PURIFIERS**—Tells how to stop downtime, mechanical failures and expensive repairs

on hydraulic equipment caused by contaminated hydraulic oils. 8-page bulletin. Honan-Crane Corp, 200 Superior Ave, Lebanon, Ind.

K22 **HOT WATER CIRCULATION** — Describes hot water piping arrangements used in buildings. Also discusses the circulation of hot water and tells how to overcome the various operating difficulties that interfere with such circulation. Data sheet. Water Service Labs, 423 W 126th St, New York 27, N. Y.

K23 **FLEXIBLE CONNECTIONS** — High temperature ball bearing swivel fittings for use as flexible connections for oil burners. Operating instructions and repacking information. 4-page bulletin. Rasmussen Mfg Co, 12339 Industrial Ave, Hollydale, Calif.

★ **CUTTING FLUIDS**—Factual data concerning more than 50 metalworking jobs. Descriptions of Sun straight and emulsifiable cutting oils included. Charts show correct cutting fluids for metals and metalworking machines. 80-page booklet. Sun Oil Co, 1608 Walnut St, Philadelphia 3, Pa. (Write direct to manufacturer on company stationery giving name and title.)

K24 **GAGE GLASS**—Data on Sonderglass, either clear or reflecting type. Material consists of two layers of glass made of semi-metallic substances with different degrees of expansion. Price list. 4-page leaflet No. 10M1148CP. A W Chesterton Co, 6 Ashland St, Everett 49, Mass.

K25 **OIL PURIFICATION** — Answers all questions about oil purification for hydraulic equipment, metal-working machines, gas and diesel engines, turbines, etc. 16-page booklet, entitled "Facts About Clean Oil." Honan-Crane Corp, 200 Superior Ave, Lebanon, Ind.

K26 **PISTON RINGS**—Thirteen different types of metallic piston rings described. Special features include drawings of typical ring installations in 2- and 4-cycle diesel or gas engines, ammonia compressors, etc. 16-page booklet. Double Seal Ring Co, P O Box 550, Fort Worth, Texas.

K27 **BLAST CLEANING MACHINE**—Describes a portable soft abrasive blast cleaning machine. Also includes an illustrated description of the cleaning of large motors formerly cleaned with inflammable solvents. 4-page bulletin No. 118. Pangborn Corp, Hagerstown, Md.

K28 **CLEANING MACHINE** — Illustrates and describes a line of precision equipment for small parts manufacturing and maintenance. 4-page bulletin. L & R Mfg Co, 577 Elm St, Arlington, N. J.

K29 **SCALE REMOVAL** — Outlines a new process named Crustex, an ultra-sonic wave-producing apparatus for the elimination of limestone crust formations in boilers and pipes. Single-sheet form. Velan Engrg Co, 1 Exchange Place, Jersey City, N. J.

K30 **PLANNED LIGHTING**—Outlines the benefits of good industrial lighting. Describes how to engineer lighting to various industrial tasks, discussing six principal lighting systems, and the use of specific techniques for special needs. 48-page bulletin No. LD-4. General Electric Co, Lamp News Bureau, Nela Park, Cleveland 12, Ohio.

K31 **FUEL OIL TREATMENT** — Describes Powersol, a fuel oil conditioner for eliminating tank sludge, cleaning clogged fuel lines and preheaters, reducing carbon at burner nozzles or tips, etc. Also covers Powersol D, a diesel fuel additive. 4-page bulletin. Power Plant Products Co, 93 Federal St, Boston 10, Mass.

K32 **CORROSION-RESISTANT COATING**—Data on "B" Resin, a flexible prepolymerized furan protective containing no plasticizer. Includes information on characteristics, adherence, colors, application, coverage, prices.—Bulletin No. C-32. A summary of 159 corrosion tests on "B" Resin given in accompanying data sheet No. C-33. Carboline Co, 7603 Forsyth Blvd, St Louis 5, Mo.

K33 **CORROSION-PROOF STORAGE**—Three types of floating roof tanks, double-deck, pontoon and pan, for product conservation and corrosion resistance are illustrated and described. 8-page bulletin No. 51-F. Hammond Iron Works, 630 Fifth Ave, New York 20, N. Y.

K34 **RETAINING RINGS** — Engineering specifications and data on a series of retaining rings specially developed to take up end-play and compensate for varying manufacturing tolerances and wear. 16-page bulletin No. 6. Waldes Kohinoor Inc, Truarc Catalog Service, 47-16 Austel Place, Long Island City 1, N. Y.

MAINTENANCE MATERIALS

L1 **LUBRICANTS**—56-page catalog No. 1-50 lists various applications of Lubriplate lubricants for air-conditioning, refrigeration, heating and ventilating equipment, chemical process industries, iron and steel plants, and many others. Product data are also given. Fiske Bros Refining Co, Lubriplate Div, 129 Lockwood St, Newark 5, N. J.

L2 **FLOOR RESURFACING**—Single-sheet form No. L-3734 shows how to use Pak-Tamp to repair or resurface floors. Non-skid, fire- and spark-proof. Paramount Industrial Products Co, University Center Station, Cleveland 6, Ohio.

L3 **CORROSION-PROOF LININGS**—Bulletin No. 4-1 describes Atlas' complete line of corrosion-proof linings, including: sheet linings, solution or dispersion linings, brick sheathings, etc. Atlas Mineral Products Co, 42 Walnut St, Mertztown, Pa.

L4 **SPIRAL WOUND GASKETS** — 48-page general catalog includes Ajax spiral wound gaskets and a complete line of metal, metal-asbestos and cut gaskets from any material to standard sizes or to specifications. U. S. Gasket Co, 602 N 10th St, Camden, N. J.

L5 **LEAD-BASE LUBRICANTS**—24-page brochure, commemorating the firm's 75th anniversary, combines both technical data on Brooks lead-base lubricants and historical information about the company. Brooks Oil Co, 934 Ridge Ave, Pittsburgh 12, Pa.

L6 **PLASTER AGGREGATE** — 6-page pamphlet discusses Permalite lightweight plaster aggregate. Recommended mixes and applications are given. Great Lakes Carbon Corp, Building Products Div, 18 E 48th St, New York 17, N. Y.

L7 **REFRIGERATION COMPRESSOR PACKINGS**—4-page folder No. OE-1 tells how to pack a refrigeration compressor, with blue prints of centrifugal and reciprocating installations. A W Chesterton Co, 6 Ashland St, Everett 49, Mass.

L8 **PROTECTIVE COATING**—Leaflet, entitled "Protecting and Preserving Old and New Masonry with Longlife," tells about a heavy paste designed for protecting and preserving masonry. Flexrock Co, 3677 Filbert St, Philadelphia 4, Pa.

L9 **PACKING AND GASKETS** — 8-page bulletin describes Garlock packings and gaskets made of Teflon, for use against all acids, all alkali solutions and all organic solvents. Typical applications are discussed. Garlock Packing Co, Palmyra, N. Y.

L10 **SPRING COSTS**—8-page booklet "Spring Buyer's Guide," is designed to aid economical purchasing by reducing to understandable terms the various factors affecting the cost of coil springs. Hunter Spring Co, Landsdale, Pa.

L11 **INDUSTRIAL HOSE** — Catalog No. H-1451-A is a revised and more complete edition on reusable steel hose ends, industrial hose and hose couplings. Weatherhead Co, Industrial Sales Div, 300 E 131st St, Cleveland 8, Ohio.

L12 **STORAGE BINS** — 12-page folder features storage bins for handling flowable bulk materials. Data tables show capacities in bushels, cubic feet, and tons in relation to heights and diameters. Neff & Fry Co, 270 Elm St, Camden, Ohio.

L13 **CORROSION-RESISTING RESIN**—Data sheet No. C-42 describes Carbo-Kote 6020, a room-temperature thermosetting corrosion-resisting resin, applied by brush, for lining tanks and covering floors and equipment subjected to corrosive service. Carboline Co, 7603 Forsyth Blvd, St. Louis 5, Mo.

L14 **PISTON RINGS** — One 12-page and two 8-page catalogs are offered. Piston rings, metallic rod packing and Bakelite products (including piston rings and rod packing) are illustrated and described in these pamphlets. Double Seal Ring Co, Box 550, Fort Worth, Texas.

L15 **CHEMICAL CLEANING**—4-page folder explains the Sumco chemical cleaning service for steam boilers, condensers, feedwater heaters, fuel oil heaters, air-conditioning equipment, diesel engines, etc. Also presents facts about advanced practices in chemical cleaning. Sumco Products Inc, 144 Centre St, Brooklyn 31, N. Y.

L16 **HOSE COUPLINGS AND FITTINGS**—12-page catalog section No. 3100 pictures and gives details on various types of hose couplings and fittings, together with specifications, general and maximum pressure recommendations, etc. B F Goodrich Co, Akron, Ohio.

L17 **RUST PREVENTION** — Catalog covers solution to many rust problems. Directions relate to uses under general exposure and other special conditions which produce rust, for machinery and implement finishes, heat-resistant and chemical-resistant coatings, floor coatings, etc. Rust-Oleum Corp, Evanston, Ill.

L18 **LUBRICATION METHODS** — Booklet, entitled "11 Ways to Cut Production Costs," presents examples of production or machinery expense economies, attained through modern handling and application of greases and oils. Alemite Div, Stewart-Warner Corp, 1826 Diversey Pkwy, Chicago 14, Ill.

L19 **HIGH TEMPERATURE LUBRICANTS** — 4-page folder, entitled "Hi-Temp Oils," completely describes the testing procedure used by Houghton's research staff in setting up 3 series of Hi-Temp oils to meet all high temperature conditions up to and even over 500 deg. E F Houghton & Co, 303 W Lehigh Ave, Philadelphia 33, Pa.

★ **PACKINGS**—20-page catalog No. PC-101 covers Palmetto self-lubricating, molded and sheet packings, both standard and special. Text points up application, structure and performance of each individual packing. Greene, Tweed & Co, North Wales, Pa. (*Write direct to manufacturer on company stationery giving name and title.)

L20 **LOCKNUTS**—6-page brochure illustrates several types of self-locking stop nuts. Outstanding features are listed. Elastic Stop Nut Corp of America, 2330 Vauxhall Rd, Union, N. J.

L21 **BEARING GREASES** — Folder contains the firm's full line of Lubriko greases for anti-friction bearings. Uses and application data for 25 different densities ranging from liquid greases to heavy cup lubricants are given. Master Lubricants Co, Meadow & Jackson Sts, Philadelphia, Pa.

L22 **ANTI-CORROSION COATING**—8-page leaflet No. 100 tells about Zincilate, a one-coat, self-protecting, anti-corrosion zinc coating. Data on surface preparation, methods of application, and case histories are given. Industrial Metal Protectives Inc, 401 Homestead Ave, Dayton 8, Ohio.

★ **HYDRAULIC OILS**—44-page booklet No. B-4 covers fundamental information on hydraulic systems, maintenance, trouble-shooting, and selection of proper fluids. Specially prepared phantom and cutaway drawings illustrate functions of basic types of valves, pumps, hydraulic motors, torque converters, etc. Sun Oil Co, Philadelphia 3, Pa. (*Write direct to manufacturer on company stationery giving name and title.)

L23 **PROTECTIVE COATING**—Data sheet No. C-21 describes Chlorclad, a rubber-base protective coating. Advantages, applications and prices are given. Carboline Co, 7603 Forsyth Blvd, St. Louis 5, Mo.

★ **MECHANICAL PACKING** — 32-page catalog features Flexrock mechanical packings, including the Flexrock process packing which is self-forming, self-lubricating, and self-sealing. Recommendation chart and illustrations are given. Flexrock Co, Packing Div, 36th & Filbert Sts, Philadelphia 4, Pa. (*Write direct to manufacturer on company stationery giving name and title.)

L24 **PROTECTIVE COATINGS** — Construction data and handbook to help solve many problems of hydrostatic pressure, dampproofing, painting, caulking, roofing and flooring. Contents include: construction details, material tables, weights and measures. Horn products and methods. 96 pages. A C Horn Co, Inc, 43-36 Tenth St, Long Island City 1, N. Y.

L25 **SOLVENT DETERGENTS** — Describes the advantages provided by Oakite solvent detergents in effecting removal of carbon, grease, dirt and paint from metal surfaces. 24-page booklet No. F-8143. Oakite Products, Inc, 123 Thames St, New York 6, N. Y.

L26 **FLOOR PROTECTOR**—Discusses the use of Stonhard Stonpach for covering concrete floors to protect them from distintegrating effects of acid, grease, oil, excess water and abrasive wear. 4-page folder. Stonhard Co, Dept. P, 1306 Spring Garden St, Philadelphia 23, Pa.

L27 **FLOOR RESURFACER** — Lists application methods of Swift-Floor for resurfacing and repairing. Can be applied over wood, concrete, brick or steel, indoors or out. Form No. 108-11. Monroe Co, Inc, 10703 Quebec Ave, Cleveland, Ohio.

L28 **CONCRETE CONSTRUCTION** — 12-page booklet, entitled "15 Steps to Better Concrete Construction," lists detailed information and specifications on Sika compounds engineered to answer specific problems of concrete and masonry construction. Sika Chemical Corp, 37-41 Gregory Ave, Passaic, N. J.

★ **VINYL PLASTIC COATINGS**—Vinyl plastic coatings for the control of corrosion on exteriors of steel, concrete, brick, formed block and plywood structures. Specific properties, chemical resistance chart, information concerning application included. 16-page bulletin. Casey & Case Coating Co, P O Box 151, Maywood, Calif. (*Write direct to manufacturer on company stationery giving name and title.)

L29 **INDUSTRIAL HOSE**—Engineering data, construction specifications and other information designed to aid engineers in the selection and care of fire hose and general industrial hose. 16-page catalog. New York Belting & Packing Co, 1 Market St, Passaic, N. J.

L30 **COLLOIDAL GRAPHITE COMPOUND**—How colloidal graphite compound dispersions are used in metal-working, glass, rubber, and corrugated boxboard industries. Gives details of specific applications. 5-page bulletin No. 427. Acheson Colloids Corp, Port Huron, Mich.

L31 **HEAT RESISTANT PAINT** — contains complete technical and application data on Heat-Rem H-170, an extra high heat-resistant aluminum paint capable of withstanding temperatures up to 1700 F. Bulletin No. TD 513500. Speco, Inc, 7308 Associate Ave, Cleveland 9, Ohio.

L32 **MECHANICAL PACKINGS** — Describes Chesterton mechanical packings. Illustrates 14 proven styles which simplify all packing problems. 4-page bulletin No. 15M. A W Chesterton Co, 6 Ashland St, Everett, Mass.

L33 **HEAT TRANSFER TUBES** — Gives construction of Brown integral one-piece fintubes. Also range of sizes and materials in which they are available, heating and cooling applications, engineering data. 8-page bulletin No. 511. Brown Fintube Co, Elyria, Ohio.

L34 **MECHANICAL SEALS**—Data on Garlock mechanical seals for rotary shafts. Several standard constructions are shown, also typical and special applications, and installation 12-page booklet No. AD 144-15M. Garlock Packing Co, Palmyra, N. Y.

L35 **CORROSION-RESISTANT PAINT** —12-page catalog No. 712 tells where and how to use Tygon corrosion-resistant paint, and where not to use it. Chemical resistance characteristics, as well as recommended primers and surface treatments are listed. U. S. Stoneware Co, P O Box 350, Akron 9, Ohio.

L36 **HOSE COUPLINGS** — 6-page brochure No. 7 contains sizes and thread data on the new Le-Hi line of fire hose expansion ring couplings and fire hose coupling accessories. Hose Accessories Co, 17th St & Lehigh Ave, Philadelphia 32, Pa.

For copies of catalogs use cards, page 189

L37 **CORROSION - RESISTING CEMENTS** — Form No. C-8 describes the use of corrosion-resisting cements to repair cracked, corroded and broken pipe, pumps, valves and other mechanical equipment in corrosive service. Carboline Co, 7603 Forsyth Blvd, St. Louis 5, Mo.

L38 **ANTI-RUST PAINT** — 6-page leaflet No. P&P 1002-B lists complete instructions for use of Rustrem anti-rust paint which can be applied right over rust without wire brushing, scraping or sand-blasting. Speco Inc, 7308 Associate Ave, Cleveland 9, Ohio.

L39 **CORROSION PREVENTION** — 4-page bulletin No. 93 announces the new Metco Systems for corrosion prevention. This technique prevents rust on tanks, bridges, piling, ship and boat hulls, refrigeration equipment and fabricated steel products for long periods of time. Metallizing Engineering Co, Inc, 38-14 30th St, Long Island City 1, N. Y.

L40 **PAINT REMOVER** — 13-page booklet No. F-7893 gives an account of materials and procedures designed to simplify the removal of oil base and synthetic paints, enamels and similar finishes from metal surfaces. Oakite Products, Inc, 123 Thames St, New York 6, N. Y.

L41 **RUBBER MATTING**—Three catalog sections. Bulletin No. 6120 describes rubber matting; bulletin No. 6100 describes perforated matting; bulletin No. 6110 describes auto and utility mats. Data and specifications on each of the types included. The B. F. Goodrich Co, Public Relations Dept, Akron, Ohio.

L42 **SOCKET SCREWS**—6-page bulletin No. 881 illustrates and gives full information on specifications and prices of small wire-size multiple-spline socket cap screws and set screws. The Bristol Co, Sales Promotion Dept, Waterbury 20, Conn.

L43 **AIR HOSE**—4-page leaflet No. 129 explains the design, construction and rubber-compounds of Conservo, a general-service air hose with a rayon cord carcass. Hewitt Rubber Div, Hewitt-Robins Inc, 240 Kensington Ave, Buffalo 5, N. Y.

L44 **LUBRICATION METHODS** — Booklet, entitled "11 Ways to Cut Production Costs," presents examples of production or machinery expense economies, attained through modern handling and application of greases and oils. Alemite Div, Stewart-Warner Corp, 1826 Diversey Pkwy, Chicago 14, Ill.

L45 **REFRACTORIES** — 6-page circular No. 128A gives application information and reference data on the complete line of Laclede-Christy refractory products, including cements and mortars, plastics, castables, coatings and firebrick. Laclede-Christy Co, 3600 Forbes St, Pittsburgh 13, Pa.

L46 **FLOOR RESURFACER** — 4-page folder, entitled "No Floor Chopping," illustrates and describes applications of Stonhard resurfacer for producing smooth heavy-duty floors. Stonhard Co, Dept P, 1306 Spring Garden St, Philadelphia 23, Pa.

L47 **ALL-SERVICE HOSE** — Bulletin No. 137 features Hewitt's Servall hose for intermittent, light-duty service in handling air, water, moderate amounts of gasoline, oil, mild chemicals and other fluids. Hewitt Rubber Div, Hewitt-Robins Inc, 240 Kensington Ave, Buffalo 5, N. Y.

L48 **FASTENING DEVICES** — 2 forms—No. TB-450 and No. LA-450 illustrate toggle bolts, machine screw lead anchors, and expansion bolts which are available in 66 sizes to meet all popular anchoring needs in floors, walls and ceilings. Holub Industries Inc, 413 DeKalb Ave, Sycamore, Ill.

L49 **PACKINGS AND GASKETS** — Loose-leaf style catalog describes and illustrates packings and gaskets. Featured are: 8 pages of engineering data on causes for packing failure; advantages of latern glands; procedure for installation of packing; recommendations for packing various types of equipment against a long list of services; and a description of Raylon products made of Teflon. 100-page catalog. Raybestos-Manhattan, Inc, Packing Div, Manheim, Pa.

L50 **STEAM-DETERGENT CLEANING** — Discusses how steam-detergent cleaning saves time and work and helps cut costs in connection with industrial maintenance operations. 7-page folder. Oakite Products, Inc, 123 Thames St, New York 6, N. Y.

L51 **FLOOR RESURFACER** — Tells about Armor resurfacing and patching material for concrete floors. Features are listed in detail with complete technical information. 4-page bulletin No. C41-1. Monroe Co, Inc, 10700 Quebec Ave, Cleveland 6, Ohio.

L52 **RING PACKING LENGTHS** — Copyrighted Table of Lengths for Cutting Ring Packing enables engineer to quickly ascertain the length to cut a ring of any size packing for any size rod or plunger without figuring. Hollow Center Packing Co, 6523 Euclid Ave, Cleveland 3, Ohio.

L53 **HOLLOW CENTER PACKING**—New Catalog of OVALHOLE Packings contains illustrations and descriptions of many different styles of Hollow Center Packing made from different materials for all types of service requirements. Hollow Center Packing Co, 6523 Euclid Ave, Cleveland 3, Ohio.

L54 **PACKING AND GASKET CUTTER**—26-page booklet illustrates and describes Allpax high- and low-pressure packings, and new and improved Allpax Gasket Cutter, which will cut gaskets from one half to 48 inches in diameter, from many materials. Allpax Co, Mamaroneck, N. Y.

MATERIALS HANDLING

M1 BELT CONVEYORS —. 40-page catalog presents the Redi-Fab series of permanent belt conveyors. Contents include typical applications, layout instructions, package breakdowns and specifications, accessories, and selection tables. Barber-Greene Co, Aurora, Ill.

M2 MAGNETIC SEPARATOR — 8-page catalog No. C-1100-A illustrates and describes the application, operation and design of the Dings nonelectric, Alnico Perma-Drum magnetic separator. Available in three models. Design features, data on capacities and dimensions included. Dings Magnetic Separator Co, 4740 W Electric Ave, Milwaukee 14, Wis.

M3 PALLET TRUCK—16-page booklet No. SP-5 features the Towmotor Model W electric pallet truck—capacity 4000 lbs. Dimensional specifications, diagrams, and advantages are given. Towmotor Corp, 1226 E 152nd St, Cleveland 10, Ohio.

M4 CHAINS AND SPROCKETS—Catalog No. A418 covers complete line of chains and sprockets for both new and replacement service on elevating and conveying equipment, and for drives. 22 types of malleable, steel and alloy chains, as well as many types designed for special requirements, are shown and described in detail. Jeffrey Mfg Co, 932-99 N 4th St, Columbus 16, Ohio.

M5 LIFT TRUCK ACCESSORIES — 4-page folder No. SP-6 pictures the various standard Towmotor accessories for mass handling of unusual materials and special types of loads. Towmotor Corp, 1226 E 152nd St, Cleveland 10, Ohio.

M6 CONVEYOR SYSTEMS — 8-page bulletin consists of ash, mechanical, and pneumatic conveyors: Chip-Veyors; furnace doors; rotary feeders; etc. Diagrams and advantages are included. National Conveyors Co, Inc, 50 Church St, New York 7, N. Y.

★ **PASSENGER ELEVATORS** — 56-page buyer's guide for passenger elevators consists of the following information: Component parts; types of control; selection; budget price data; layouts; installations; modernization; and protective maintenance. Westinghouse Elec Corp, Elevator Div, Jersey City, N.J. (*Write direct to manufacturer on company stationery giving name and title.)

M7 SINGLE-DRUM HOIST — 16-page booklet No. 76-X describes the complete line of Joy single-drum, multi-purpose hoists for mines, construction jobs, oil fields, and industrial plants. A handy Select-O-Hoist chart simplifies the choice of any hoist to fill a particular need. Joy Mfg Co, Oliver Bldg, Pittsburgh 22, Pa.

M8 VIBRATING SCREENS — 12-page booklet No. 254 gives informative data on Link-Belt CA concentric action vibrating screens for medium- and heavy-duty service. Accurate sizing, thorough rinsing and rapid dewatering of a wide range of materials ranging from ashes to zinc ore can be accomplished. Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill.

M9 ASH HANDLING SYSTEMS—12-page bulletin No. 650 explains the company's hydraulic ash handling systems and pneumatic systems. Diagrams and a partial list of installations are given. Hydro-Ash Corp, 1408 W Harrison St, Chicago 7, Ill.

M10 CAR SHAKER—8-page bulletin No. 07B7221A presents the Allis-Chalmers car shaker for unloading granular material from hopper-bottom gondola cars. Construction features, specifications and a cross-section view through the vibrating mechanism are given. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

M11 CONVEYOR AND ELEVATOR BELTING—16-page booklet No. 3679 covers all types of conveyor and elevator belting. Contains a discussion of each of the various types and suggestions for their application. Thermoid Co, Trenton, N. J.

M12 CHEMICAL FEEDER—8-page folder No. 35-G5 features the firm's new midget belt Gravimetric chemical feeder, a small weighing feeder for dry materials. Illustrations include various component parts, dimension drawings, and typical installations. Omega Machine Co, 345 Harris Ave, Providence, R. I.

M13 EQUIPMENT SUPPLIES — 32-page catalog No. 550 itemizes babbitted journal boxes, roller bearing pillow blocks, centrifugal slurry pumps, water valves, conveyor takeups, roller holdbacks, and perforated steel screen plates. Also included is specification information on conveyor and drive pulleys, V-belt sheaves, gears, sprockets, shafts and keys. All equipment listed is for heavy-duty service. McNally-Pittsburg Mfg Corp, Pittsburg, Kansas.

M14 SWIVEL SPOUT—Data Sheet No. 5001 contains complete specifications for a new dust-tight swivel spout designed to eliminate routing of batches by dusty swivels or conveyor plows. Three-plan diagram is included, all dimensions marked. Richardson Scale Co, Clifton, N. J.

M15 ELECTRIC HOIST—7-page bulletin No. H-112 describes the Whiting electric hoist in ¼, ½, 1, and 2 ton capacities. Specifications and accessories included. Whiting Corporation, Harvey, Illinois.

M16 LIFT TRUCKS — 4-page folder gives informative data on Towmotor gas-powered fork lift trucks. Towmotor Corporation, 1226 East 152nd St, Cleveland 10, Ohio.

M17 CAR UNLOADER—4-page folder No. 2-50-KCU illustrates how the Kinney car unloader removes frozen coal out of hopper cars without the use of heat. Heyl & Patterson Inc, 55 Water St, Pittsburgh 22, Pa.

M18 HOISTWAY DOORS — 12-page booklet No. A-389 contains installation data and construction features of Otis freight elevator hoistway doors and vertical-lifting car grates. Otis Elevator Co, 260 11th Ave, New York 1, N. Y.

M19 HEAVY-DUTY SHAKEOUT—4-page bulletin No. 2338 describes the new line of Link-Belt heavy-duty "CA" foundry shakeouts available in standardized sizes from 8-30,000 lb load capacity. Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill.

M20 LIFT TRUCKS — Complete data on Towmotor fork lift trucks including capacities, load centers, lift heights, weights, dimensions, etc. 4-page bulletin No. F2 Towmotor Corp, 1226 E 152nd St, Cleveland 10, Ohio.

M21 COAL HANDLING—Booklet, entitled "Economic Coal Storage," is a training aid on safe, orderly coal handling methods. 7-page booklet No. MS-872-5012. Allis-Chalmers Mfg Co, Tractor Div, Milwaukee 1, Wis.

M22 COAL HANDLING — Describes modern central station coal handling practices as portrayed by recent installations; illustrates individual units of equipment. Complete with diagrams, dimensional drawings, etc. 20-page bulletin No. 103. C O Bartlett & Snow Co, 6200 Harvard Ave, Cleveland 5, Ohio.

M23 MAGNETIC SEPARATOR—Features the Eriez magnetic hump designed to remove tramp iron from materials conveyed in pneumatic, gravity flow or liquid lines. Includes construction and application data, engineering diagrams, etc. 4-page bulletin No. 702. Eriez Mfg Co, Erie, Pa.

M24 WIRE ROPE AND CHAIN FITTINGS—Revised, enlarged data book on industrial and marine hardware. Combines engineering information with extensive catalog of wire rope and chain fittings. Working characteristics, tables and charts included. 44-page catalog No. 150. Thomas Laughlin Co, Portland 6, Maine.

M25 ELECTRIC CABLE HOISTS — Describes Bob-Cat heavy-duty electric cable hoists. Illustrated with photos and line drawings of various types of suspensions. Also gives specifications on 1- to 5-ton models and lists lifting capacities, heights, etc. 6-page catalog. Ohio Hoist & Mfg Co, Broadway & Henry Sts, Cleveland 5, Ohio.

★ **MATERIAL HANDLING** — Collection of seven articles on how aluminum saves manpower and effects other economies in modern handling equipment. 16-page booklet. Aluminum Association, 420 Lexington Ave, New York 17, N. Y. (*Write direct to manufacturer on company stationery giving name and title.)

★ **CHAIN CONVEYORS**—Information on conveyor chains, chain-on-flat and chain-on-edge floor conveyors, and a variety of pusher dogs used in connection with them. 90-page catalog No. 51. Jervis B Webb Co, 8901 Alpine Ave, Detroit 4, Mich. (*Write direct to manufacturer on company stationery giving name and title.)

M26 MAGNETIC CONVEYOR — New principles in conveying skelp, plate, sheet, rod, bar, pipe and shapes through the installation of magnetic conveyor elements are illustrated and explained. Typical installations described. 4-page bulletin No. 553. Eriez Mfg Co, Erie, Pa.

MECHANICAL TRANSMISSION

N1 BALL BEARINGS—Catalog simplifies and illustrates, by examples, selection of bearing type and size for various conditions of load and speed. Load rating tables give both radial and thrust capacities for all bearings except those types which are designed for specialized services. New Departure Div, General Motors Corp, Bristol, Conn.

N2 CHAIN DRIVE — Handbook No. ARC-51-PR is packed with suggestions on how to install, maintain and operate roller chain. Tells how to plan chain drive layouts; offers hints on lubrication and roller chain selection. Atlas Chain & Mfg Co, Kensington & Caster Aves, Philadelphia 24, Pa.

N3 BELTS AND PULLEYS — 40-page book, entitled "Uni-Pull Drive Manual," enables the reader to select, without calculation, proper size of flat leather belt and pulleys of the correct dimension to transmit power from a motor of a given hp and speed to a machine to be operated at a prescribed speed. American Leather Belting Assn, 41 Park Row, New York 7, N. Y.

N4 VARIABLE SPEED DRIVE — 6-page bulletin No. AS-1600-B3 gives informative data on Worthington's Allspeed drive, a variable-speed transmission of simple, sturdy and compact design, that provides correct production speeds for any given job that requires speed changes quickly and smoothly. Worthington Pump & Machy Corp, Allspeed Drive Div, Holyoke, Mass.

N5 FLUID POWER — 8-page publication No. 10051-A illustrates and describes complete line of fluid power pumps, motors, transmissions, cylinders and valves used extensively in the iron, steel, metal working, rubber, textile, etc, industries. Oilgear Co, 1560 W Pierce St, Milwaukee 4, Wis.

N6 **SPEED CONTROL**—12-page bulletin No. 20B7223A covers the automatic Vari-Pitch drive, a simple, low-cost method of instant speed control covering most speed changing needs from 1½ to 40 hp. Instructions and tables are also given for figuring the components needed to assemble a drive for almost any speed range and hp within the range of this drive. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

N7 **SPEED REDUCER** — 32-page booklet No. G-WBV gives informative data on Imo-De Laval worm gear speed reducers. It covers all the latest revised AGMA hp ratings. Also lists types of speed reducers, selection tables, overhung load rating tables, dimension tables, etc. De Laval Steam Turbine Co, Trenton 2, N. J.

N8 **SPEED REDUCER**—16-page bulletin No. 1105 illustrates and describes the new Falk concentric shaft speed reducer and right-angle shaft all-steel speed reducer. Information on service factors, dimensions, rating tables, method of selection, is provided. Falk Corp, 3001 W Canal St, Milwaukee 8, Wis.

N9 **SPEED REDUCER** — 16-page catalog No. 3110 provides selection information, dimensions, rating tables and service factors on Falk's new all-steel right-angle Motoreducer. Falk Corp, 3001 W Canal St, Milwaukee 8, Wis.

N10 **TRANSMISSION BELTING** — 8-page folder No. 3678 contains complete formulae, charts, and tables for the proper selection of transmission belting. Thermoid Co, Trenton, N. J.

N11 **SPEED REDUCERS** — 24-page catalog No. 1115 provides information on selection, service factors, dimensions, rating tables, etc, of Falk parallel shaft roller bearing speed reducers. Falk Corp, 3001 W Canal St, Milwaukee 8, Wis.

N12 **COUPLINGS**—6-page folder No. 50 features the firm's new Dihedral couplings designed to handle misalignment up to 7 deg. Diagrams and service factors are given. Ajax Flexible Coupling Co, Inc, Westfield, N. Y.

N13 **WORM GEAR DRIVES** — 80-page book No. 2324 illustrates, describes, and tabulates Link-Belt worm gear drives of 3 basic types, each available in 10 different sizes, for fractional or large hp, and in speed ratios of 3% to 1 up to 8000 to 1. Also contains typical drive problems with their solutions. Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill.

N14 **VARIABLE SPEED**—7-page bulletin No. 2349 discusses the P.I.V. variable speed drive with four basic control systems: electronic, pneumatic, hydraulic, and mechanical. Link-Belt Co, 300 W Pershing Rd, Chicago 9, Ill.

N15 **AUTOMATIC CLUTCHES** — Complete line of Mercury automatic clutches is set forth in 3 bulletins: No. 216, 8 pages, gives a general description, listing and illustrating various applications; No. 217, 4 pages, deals with Mercury automatic clutches applied to gasoline engines; No. 218, 4 pages, covers electric motor installations. Automatic Steel Products Inc, Mercury Clutch Div, Canton 6, Ohio.

N16 **SPEED REDUCER**—4-page folder No. HW-150 features the new Winsmith Type DBRA speed reducer, fully standardized and stocked in 24 assemblies. Diagrams and torque output ratings table are included. Winfield H Smith Corp, Springville, Erie County, N. Y.

N17 **PILOTED COUPLINGS** — Illustrates and describes the application of Falk speed reducers, couplings, gears and Motoreducers in specific industries. Geared power transmission applications shown with line drawings and photographs. 6-page bulletin No. 4115. The Falk Corp, 3001 W Canal St, Milwaukee 8, Wis.

N18 **FLEXIBLE SHAFT COUPLINGS** —Information on Link-Belt RC flexible shaft couplings includes dimensions, weights, service factors and hp ratings. Also data on Style R spun metal revolving type and Style P plastic, revolving type protective grease-retaining casings. 4-page folder No. 2363. Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill.

N19 **VARIABLE SPEED DRIVES** — Covers in condensed form, the three basic units of Reeves variable speed drives—variable speed transmission, Vari-speed Motodrive, and Vari-speed motor pulley—and a wide variety of manual and automatic controls for use with them. 12-page bulletin No. G-509. Reeves Pulley Co, Columbus, Ind.

N20 **GEAR COUPLING**—4-page folder explains simplified, 7-part construction of the Sier-Bath gear coupling. A check list of advantages is given, as well as photographs and descriptions of typical installations. Sier-Bath Gear & Pump Co, Inc, 9252 Hudson Blvd, North Bergen, N. J.

N21 **BELT DRIVE** — 4-page publication, entitled "What is the Uni-Pull Drive," discusses elements of Uni-Pull drive and features 3 types of motor bases used on this drive. American Leather Belting Assn, 41 Park Row, New York 7, N. Y.

N22 **MECHANICAL COUPLINGS** — Handbook for designers of tension linkages, a term, as used in this book, meaning any chain application in which linear movement of the chain is not continuous in direction. Various types of roller chains used in tension linkage illustrated, described and cataloged. Bulletin No. 51-10. Baldwin Duckworth, Div, Chain Belt Co, Dept PR, Springfield 2, Mass.

N23 **CENTRIFUGAL CLUTCH COUPLINGS**—Gives data on Centric 4-duty Rawson centrifugal clutch couplings. Illustrations, dimensions and advantages are given. 16-page bulletin. Centric Clutch Co, 22-26 South Ave, West, Cranford, N. J.

N24 **REVOLVING JOINTS** — Presents data on Barco new improved revolving joints designed for steam or cold service generally in excess of 25-50 rpm to 2500 rpm in some models. 8-page catalog No. 300. Barco Mfg Co, 1801 W Winnemac Ave, Chicago 40, Ill.

N25 **ROLLER CHAINS AND SPROCKETS** — Provides complete specifications and engineering reference tables on American standard roller chains, sprockets and attachments. Dimensional data, strengths and weights are also supplied on allied products. Catalog No. RS-50. Whitney Chain Co. Hartford, Conn.

N26 **MINIATURE SPEED CHANGES** —Data sheet on Series 7 miniature speed changers for applications where the basklash between high and low speed shafts must be zero or very low value, and where input torque is available to overcome increased losses and roughness inherent wtih preloaded gearing. 2-page data sheet No. 7. Metron Instrument Co, 432 Lincoln St, Denver 9, Colo.

METALS AND ALLOYS

R1 **HIGH-TEMPERATURE ALLOYS** —96-page book, entitled "Haynes Alloys for High-Temperature Service," contains technical data on 10 alloys specially developed to meet exacting demands of service at elevated operating temperatures. A section on each alloy gives general description, recommended uses, chemical composition, and physical and mechanical properties, in both tabular and graphic form. Haynes Stellite Div, Union Carbide & Carbon Corp, Kokomo, Ind.

R2 **STEEL TUBING**—20-page booklet No. TB-335 presents brief descriptions of terminology used in the manufacture and application of steel tubing. Babcock & Wilcox Tube Co, Beaver Falls, Pa.

R3 **STANDARD STEELS** — 4-page technical data card No. 119C is a revised edition of combined standard steel lists of AISI and SAE. Covers 3 groups: basic open-hearth and acid-bessemer carbon steels and resulfurized carbon steels; open-hearth and electric-furnace alloys steels; and stainless and heat-resisting steels, subject to standard variations for check analysis. Babcock & Wilcox Tube Co, Beaver Falls, Pa.

R4 **HARDFACING ALLOYS** — 20-page catalog contains detailed information on the complete line of Airco hardfacing alloys. Typical uses, mechanical properties, chemical analyses, etc. Air Reduction Sales Co, 60 E 42nd St, New York 17, N. Y.

R5 **SILVER - BRAZING ALLOYS** — Gives "do's" and "don'ts" of sound procedure in using All-State silver-brazing alloys. 4-page folder. All-State Welding Alloys Co, Inc, 273 Ferris Ave, White Plains, N. Y.

R6 **NICKEL ALLOYS**—Two bulletins offered, 42 pages each. Bulletin No. T-3 gives the engineering properties of K Monel and KR Monel. Bulletin No. T-7 gives the engineering properties of Inconel, and also contains material on Inconel X, a newer age-hardenable nickel alloy. Both bulletins have charts, tables on compositions and properties, and working instructions. The International Nickel Co, Inc, 67 Wall St, New York 5, N. Y.

R7 **CENTRIFUGAL CASTING** — Technical literature presents detailed information on modern techniques of centrifugal casting in permanent molds for improved and expanded production of cylindrical shapes in a variety of alloy steels. Reference tables, drawings, charts, photos. 8-page leaflets. Lebanon Steel Foundry, Lebanon, Pa.

R8 **STEEL CASTINGS** — Booklet "The Steel Casting Industry" lists 7 prime reasons, aside from economy, why all types of manufacturing industries are making increased use of steel castings for many finished products. 34-page booklet. Steel Founders Society of America, 920 Midland Bldg, Cleveland 15, Ohio.

R9 **STAINLESS STEEL TUBING** — Outlines physical and mechanical characteristics of three non-hardening straight chromium stainless tubing steels—Croloy 12 A1, Croloy 19, and Croloy 27, for mechanical and pressure uses. 4-page bulletin No. TDC 140. Babcock & Wilcox Tube Co, Beaver Falls, Pa.

R10 **METAL PARTS** — 40-page hardfacing manual describes how to select the right alloy; which welding process to use; and simple instructions for applying the various rods by both the oxy-acetylene and metallic-arc welding processes. Also gives properties and sizes of 12 Haynes hard-facing materials. Haynes Stellite Div, Union Carbide and Carbon Corp, 725 South Lindsay St, Kokomo, Ind.

R11 **COPPER BASE ALLOYS** — Describes Lunkenheimer copper base alloys, their manufacture, properties and general application. 16-page brochure. Lunkenheimer Co, Box 360-AA, Cincinnati 14, Ohio.

R12 **CAST STEELS** — Lunkenheimer cast steels, their manufacture, properties and general application described. 16-page brochure. Lunkenheimer Co, Box 360-AA, Cincinnati 14, Ohio.

R13 **UNCOATED METALS** — The ASME announces as available the proposed revision to American Standard preferred thicknesses for uncoated thin flat metals (under 0.250 in.) ASA B32.1. 6-pages. The American Society of Mechanical Engineers, Standards Dept, 29 W 39th St, New York 18, N. Y.

R14 **TUBING STEELS**—Technical information on tubing steels used in elevated temperature and high pres-

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sure applications. Included are data on carbon intermediate chrome molybdenum and stainless steels. 6-page bulletin No. 12F. Babcock & Wilcox Tube Co, Beaver Falls, Pa.

R15 **TUBES AID PIPING**—Handbook, "The Properties and Methods of Working Seamless and Welded Tubes and Pipe of the B&W Stainless Croloys," is designed to serve as a guide in choosing proper material and as a help in planning the conversion of stainless steel tubing into finished products for industry. 104-page bulletin No. 1B. Babcock & Wilcox Tube Co, Beaver Falls, Pa.

METERS AND INSTRUMENTS, ELECTRIC

S1 **SMOKE INDICATOR** — 4-page data sheet No. 10.14-4 tells how smoke prevention plus combustion control cut fuel costs. Shows equipment required, installation and operation. Minneapolis - Honeywell Regulator Co, Industrial Div, Philadelphia 44, Pa.

S2 **ELECTRIC INSTRUMENTS** — 4-page leaflet No. Z6600 illustrates and briefly describes a selection of typical Wheelco indicators, controllers and combustion safeguards. Price list is also given. Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

S3 **INSULATION TESTERS**—2 bulletins are offered. One features ac and dc insulation testers. The other presents a large, long-scale, spot-of-light pointer-type instrument and single-range and multi-range electrostatic voltmeters. Cole Instrument Co, 1320 S Grand Ave, Los Angeles 15, Calif.

S4 **VOLT-AMMETER**—16-page manual No. 110 relates how the Amprobe, a pocket-size snap-on volt-ammeter, can save time and trouble, and also explains how to use it and how to read the scales. Pyramid Instrument Corp, 49 Howard St, New York 13, N. Y.

S5 **INSULATION TESTER**—24-page catalog No. 21-20 describes the heavy-duty type of Megger insulation and resistance testers. Several types are shown as well as other Megger instruments. James G Biddle Co, 1316 Arch St, Philadelphia 7, Pa.

S6 **THERMOCOUPLES** — 28-page catalog No. TC-8 contains up-to-date prices, application recommendations and pertinent information concerning thermocouples, radiation detectors, resistance bulbs, etc., for indicating, controlling and recording instruments. Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

S7 **REACTIVE POWER** — 4-page data sheet No. 9.1-3 describes methods for accurate and rapid measurement of useful power with a check on reactive power to prevent overloading of generators. Minneapolis-Honeywell Regulator Co, Brown Instruments Div, Wayne & Roberts Aves, Philadelphia 44, Pa.

S8 **X-RAY PHOTOMETER**—8-page bulletin No. GEC-412A explains the theory of operation, principal components, and operating procedure of the G-E x-ray photometer for chemical analysis by x-ray absorption. Some of the applications in the petroleum and chemical industries are listed. General Electric Co, Schenectady 5, N. Y.

S9 **STRIP CHART RECORDERS** — 4-page folder No. C2-2 describes the Wheelco Capacilog line of electronically operated strip chart recorders. Model numbers and specifications of various recorders and recorder-controllers are given. A separate price list supplement is also included. Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

S10 **THERMOCOUPLES, PYROMETERS** — 56-page catalog No. P1238 contains thermocouple and pyrometer accessories. Tables of calibration data for the commonly-used base metal and rare metal thermocouples are included. Bristol Co, Waterbury 20, Conn.

S11 **POTENTIOMETER CONTROLLERS** — Data on multi-record Electronik strip chart potentiometer controllers, general specifications, dimensions and performance charts giving control circuit, rating, application, etc, included. 4-page bulletin No. 189. Minneapolis-Honeywell Regulator Co, Brown Instruments Div, Wayne & Roberts Aves, Philadelphia 44, Pa.

S12 **GROUND TESTING**—Data on Vibroground Model 243 lightweight soil resistivity tester; and Model 263 designed for testing soil resistance, circuit resistance, anode resistance and polarization effects. 2-page data sheet No. 26-43. Associated Research, Inc, 3758 W Belmont Ave, Chicago 18, Ill.

S13 **WATTHOUR METERS**—Manual shows how electric energy is measured; describes operating principles of alternating-current watthour meters; and explains techniques involved in the use, testing, and maintenance of meters. 40-page manual No. GET-1840. General Electric Co, Apparatus Dept, Schenectady 5, N. Y.

S14 **SMOKE ALARM**—Model M smoke density indicator alarm for coal, oil, and gas burning installations described in 2-page bulletin No. 110. One-page bulletin No. 107 includes description, operation, list of materials, and installation information on Model A indicating smoke alarm and recorder. General Power Plant Corp, 381 Fourth Ave, New York 16, N. Y.

For copies of catalogs you need, send in cards on page 189

S15 **VISCOSITY MEASUREMENT** — Covers Viscorator instruments that provide an instantaneous method for determining viscosity values for industrial processes. Featured is the Auto-Sampling Viscorator which has a constant differential pressure regulator as an integral part of its design. 11-page catalog No. 88. Fischer & Porter Co, 4030 County Line Road, Hatboro, Pa.

S16 **STEAM AND LIQUID CONTROL**—Illustrations and engineering data on precision pressure regulators, temperature regulators, float valves, strainers, etc. Drawings, layout diagrams, dimensions and capacity tables are included. 56-page catalog No. 51. O C Keckley Co, 400 W Madison St, Chicago 6, Ill.

S17 **PRESSURE INDICATOR** — Describes Electronic pressure indicator for measurements of static and rapidly alternating forces, pressures, distances, and vibrations. Accessories include various pick-ups and a synchromarker. 6-page pamphlet No. 525-E Mogens Bank & Co, P O Box 665, Old Saybrook, Conn.

S18 **ELECTRICAL RESISTANCE TESTERS**—Describes the Midget Megger insulation tester, the CVM constant voltage type, and the Midget Megger circuit testing ohmmeter. Specifications and facsimile scales included. 8-page bulletin No. 21-85-24. James G Biddle Co, 1316 Arch St, Philadelphia, Pa.

S19 **POTENTIOMETERS** — Covers ElectroniK electric control potentiometers for both contact and proportional control. Includes application, engineering and construction data, types of control, partial list of available ranges, and accessories. 36-page catalog lo. 15-15. Minneapolis-Honeywell Regulator Co, Station 40, Wayne & Windrim Aves, Philadelphia 44, Pa.

METERS AND INSTRUMENTS, MECHANICAL

T1 **CONTROL LINKAGE** — 16-page brochure No. CA942 presents control connecting linkage for use with Bailey control drives. Also contains engineering and price data for choosing and ordering the correct material and arrangement to suit almost any application. Bailey Meter Co, 1050 Ivanhoe Rd, Cleveland 10, Ohio.

T2 **WATER COLUMNS AND GAGES** —32-page publication No. 50 illustrates and describes Ernst water level and liquid gages, illuminators, water columns, gage glass guards, gage glass inserts, etc. Prices are given. Ernst Water Column & Gage Co, Livingston, N. J.

T3 **TEMPERATURE INDICATOR**—12-page bulletin No. 404 introduces the firm's new line of thermocouple actuated Microsen temperature indicators and recorders, capable of measuring temperature between minus 100 F and plus 3000 F. Design features and specifications are listed. Manning, Maxwell & Moore Inc, 11 Elias St, Bridgeport 2, Conn.

T4 **ELECTRONIC FLOWMETER** — 4-page folder No. 1050 tells about the Potter electronic flowmeter which eliminates bearing maintenance, friction drag, and high pressure drop. Sizes and applications are given. Potter Aeronautical Co, 87 Academy St, Newark 2, N. J.

T5 **RECORDING GAGE** — 32-page bulletin No. G621 consists of the company's line of Series 500 recording gages. Measuring elements, operating principles, recording charts and accessories for various types of recording gages are fully described. Bristol Co, Waterbury 20, Conn.

T6 **LIQUID LEVEL INDICATORS** — 20-page catalog No. WG-1823 describes liquid level indicators and auxiliary attachments for remote indication of liquid level in boilers, feedwater heaters, storage tanks, etc. Complete construction and operation details, installation suggestions, dimensions, etc, are given. Yarnall-Waring Co, Philadelphia 18, Pa.

T7 **WATER LEVEL GAGES** — 24-page booklet No. L700 describes float, pressure bulb, pressure, counterpoise, differential pressure and air-bubbler types of liquid level gages for a variety of uses. Applications of the instruments to chemical processing operations involving solutions, suspensions, and organic liquids are included. Bristol Co, Waterbury 20, Conn.

T8 **FLOW INDICATOR** — 12-page bulletin No. 42 features the firm's new V/A Cell Kinetic manometer, a compact flow indicator and transmitter unit developed for differential pressure applications. Diagrams show typical installations. Fischer & Porter Co, 42 County Line Rd, Hatboro, Pa.

T9 **RESONANT REED TACHOMETERS** — 16-page pamphlet No. 31-24 discusses Frahm resonant reed tachometers for hand use or permanent mounting. Operate without direct contact with moving parts under test. Price sheet is included. James G Biddle Co, 1316 Arch St, Philadephia 7, Pa.

T10 **TELEMETERS** — Folder No. DMO29 contains information on the use of the company's Metameter telemeter for remote measurement and automatic control of temperatures, pressures, rates of flow, liquid levels, etc, over distances ranging from a few feet to many miles. Bristol Co. Sales Prom Dept, Waterbury 20, Conn.

T11 **FLOWMETER** — 4-page bulletin No. FT presents informative data on the Foster Flow Tube, a new primary element for the measurement, regulation and control of fluid flow. Capacity curves and cross-sectional

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views are included. Foster Engrg Co, Union, N. J.

T12 **FLUID MEASUREMENT** — 12-page booklet No. G101 features the King-Gage—a hydrostatic instrument that directly shows weight, volume or depth of liquids in storage or in process. Details on construction, together with complete specifications on 6 standard sizes are given. King Engrg Corp, Box 300, Ann Arbor, Mich.

T13 **GAS ANALYZER**—4-page leaflet No. 120 describes an improved type of gas analyzer for measuring CO_2, O_2 and CO. Complete details and illustrations are given. Ellison Draft Gage Co, Inc, 214 W Kinzie St, Chicago 10, Ill.

T14 **RECORDING GAS THERMOMETERS** — 6-page bulletin No. T848 tells about the Series 500 pipeline recording thermometers for natural and manufactured gas temperatures. Photographs and drawings showing methods of application are included. Bristol Co, Waterbury 20, Conn.

T15 **PNEUMATIC METERING ELEMENT**—4-page folder No. 2150 describes and illustrates the Hagan meter type differential Master Sender, a pneumatic machine used as the metering element in measurement and control of steam, gas and liquid flow, liquid level, pressure differential and similar applications. Hagan Corp, 228 Fourth Ave, Pittsburgh, Pa.

T16 **STEAM CALORIMETER** — 4-page leaflet No. 118 covers the Ellison U-Path steam calorimeter, which combines a throttling, separating and reevaporating calorimeter in a single chamber. Ellison Draft Gage Co, Inc, 214 W. Kinzie St, Chicago 10, Ill.

T17 **ENGINE INDICATOR** — 2-page leaflet describes the Bacharach Type 4-HST Chronomatic engine indicator for high-speed engines. Bacharach Industrial Instrument Co, 7000 Bennett St, Pittsburgh 8, Pa.

T18 **SMOKE CONTROL** — 8-page bulletin No. 501 describes Smokgage and Hasagage combustion indicators, recorders and controls. Ess Instrument Co, 96 S Washington Ave, Bergenfield, N. J.

T19 **FLOW INSTRUMENTS** — 28-page catalog No. 50 describes developments in exhibiting and controlling flow instruments for all industries. Illustrated and described are flow indicators, recorders, integrators, and new pneumatic controller unit. Fischer & Porter Co, 59 County Line Road, Hatboro, Pa.

T20 **TEMPERATURE AND PRESSURE INSTRUMENTS**—8-page catalog No. 86 illustrates and describes new measuring, exhibiting and controlling temperature and pressure instruments. Also descriptive data on Type 3 Pneumatrol unit with proportional band, automatic reset and derivative action control. Fischer & Porter Co, 86 County Line Road, Hatboro, Pa.

T21 **THERMOMETERS** — 44-page bulletin No. T840 gives complete information on Series 500 line of thermometers. Liquid-filled, vapor pressure, and gas filled types are described in models for recording, indicating, controlling, and telemetering of temperatures. The Bristol Company, Sales Promotion Dept, Waterbury 20, Conn.

T22 **DRAFT GAGES**—Portable, stationary and laboratory type inclined draft gages and accessories are described. Tables of capacities, sizes, and prices are also included. 19-page bulletin No. 109. Ellison Draft Gage Co, Inc, 214 W Kinzie St, Chicago 10, Ill.

T23 **RECORDER EQUIPMENT**—Discusses and compares the principles of operation of Micromax and Speedomax speed recorders with supplementary illustrations of recorder installations. Also describes a general-purpose instrument which operates in any position at speed up to 2500 rpm. 12-page catalog No. N-27. Leeds & Northrup Co, 4934 Stenton Ave, Philadelphia 44, Pa.

T24 **STATIONARY TACHOMETERS** —Covers the Model J-4 centrifugal type stationary tachometer in standard ranges from 10 to 100 rpm for a minimum and 1000 to 10,000 for a maximum. Designed for permanent mounting on machines or panels. 2-page bulletin No. 794. Herman H Sticht Co, Inc, 27 Park Place, New York, N. Y.

T25 **SMOKE INDICATORS**—Features the visual Wyd-Angle smoke periscope for marine and industrial use, and the Cat's-Eye furnace indicator for viewing furnace performance from any point in boiler room. 4-page bulletin No. 5101. Ess Specialty Corp, 96 S Washington Ave, Bergenfield, N. J.

T26 **ELECTRIC TACHOMETER**—Illustrates a new Reeves electric tachometer which operates on the ac generator principle. Installation and maintenance data, as well as dimensions and mounting charts included. Bulletin No. G-511. Reeves Pulley Co, Columbus, Ind.

T27 **ACCELEROMETERS** — Data and specification on Glennite self-generating accelerometers. Models 2403, A401 and A104. 4-page bulletin No. A403. Gulton Mfg Corp, Metuchen, N. J.

PIPING, FITTINGS, VALVES AND SPECIALTIES

▼

U1 **DROP FORGED STEEL VALVES** —400-page book No. F-9 is full of new and improved drop forged steel valves and fittings, and flanges, for every modern piping need at high or low pressures and temperatures. A refrigeration section is included in the back of the book. Henry Vogt Machine Co, 10th & Ormsby Sts, Louisville 10, Ky.

U2 **MECHANICAL TUBING** — Data card No. 1150 consists of a table on tolerances for round seamless carbon and alloy steel mechanical tubing, giving permissible variations in diameter and wall thickness. Babcock & Wilcox Tube Co, Beaver Falls, Pa.

U3 **FLEXIBLE BALL JOINTS** — 16-page catalog No. 215 covers Barco flexible ball joints. General descriptions, service information, pressure rating charts and dimensions are given. Barco Mfg Co, Dept J-64, 1801 Winnemac Ave, Chicago 40, Ill.

U4 **CORRUGATED METAL PIPE** — 16-page booklet, entitled "Armco Corrugated Metal Pipe—A Type for

(Continued on page 192)

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Every Need," lists the types of full-round pipe and Pipe-Arch available for various types of sewers, culverts, conduits or irrigation systems. Armco Drainage & Metal Products, Inc, Middletown, Ohio.

U5 **REDUCING VALVE** — 6-page bulletin No. W-3 contains complete technical information on Golden-Anderson's cushioned water pressure reducing valve. Installation, operation, adjustment, servicing and specifications are fully described. Golden-Anderson Valve Specialty Co, 2070 Keenan Bldg, Pittsburgh 22, Pa.

U6 **LIGHTWEIGHT PIPE** — 4-page folder No. 507 shows typical applications of Naylor Lockseam Spiral weld pipe in the construction, dredging, materials handling, paper mill, power plant, etc, fields. Includes data on fittings, flanges, connections, and pipe specifications. Naylor Pipe Co, 1230 E 92nd St, Chicago 19, Ill.

U7 **DRAINAGE MANUAL** — 46-page manual is presented to assist construction engineers, superintendents, and foremen in the proper methods of installing Armco drainage structures, culverts, sewers, or conduits. Armco Drainage & Metal Products, Inc, Middletown, Ohio.

U8 **VALVES** — 112-page catalog No. 50V covers the entire Stockham line of bronze and iron body valves. Photographs, dimensional diagrams, price, weight, and sizes are listed. A section is devoted to accessories and essential engineering data. Stockham Valves & Fittings, Box 2592, Birmingham 2, Ala.

U9 **PACKLESS EXPANSION VALVES** —16-page bulletin No. R-35-51 explains design and construction of Corruflex, a corrugated packless expansion joint that requires no maintenance. Gives sizes, temperature and pressure ratings, dimensions and weights. American District Steam Co, North Tonawanda, New York.

U10 **PIPE FITTINGS** — Bulletin No. 104 describes complete line of Kennedy cast-iron, malleable and bronze fittings. Also covers recent additions of cast-iron screwed, flanged, sprinkler and extra-heavy malleable fittings. Kennedy Valve Mfg Co, Elmira, N. Y.

U11 **AIR RELIEF TRAPS** — Single-sheet bulletin No. 206 tells about ball float traps for venting air from any liquid under pressure. Hookup diagrams, cross-sectional drawings and physical data and list prices are included. Armstrong Machine Works, Three Rivers, Mich.

U12 **SOLENOID VALVES** — 4-page bulletin No. 8262-8314 describes 2- and 3-way midget-size packless solenoid valves for air, gas, water, light oil, refrigerants, and other fluids. Flow data and list prices are included. American Switch Co, Orange, N. J.

U13 **STEAM TRAPS** — 4-page folder No. 550 contains specifications, capacities, sizes, pressures, weights and list prices of all principal types of Super-Silvertop steam traps. V D Anderson Co, 1934 W 96th St, Cleveland 2, Ohio.

U14 **VALVES AND FITTINGS** — 24-page catalog No. R-4 covers the company's complete line of refrigeration and air-conditioning valves, fittings and accessories. Superior Valve & Fittings Co, 1509 W Liberty Ave, Pittsburgh 26, Pa.

U15 **SAFETY VALVE**—8-page publication M-302 presents the Lock-Tite safety valve, designed for all types of gas combustion systems. Operation, construction details, applications, selection information, dimensions and prices are included. Eclipse Fuel Engrg Co, Rockford, Ill.

U16 **VALVES AND FITTINGS** — 48-page booklet No. 52 furnishes details on the company's line of stainless steel valves, fittings and accessories. Also contains engineering drawings, weights, dimensions, size ranges, materials, corrosion data, nomenclature and design data. Cooper Alloy Foundry Co, Hillside 5, N. J.

U17 **BLOW-OFF VALVES** — 24-page booklet No. B-433 discusses blow-off valves for high-pressure boilers. Construction details, materials specifications, dimensions, and list prices are given. Yarnall-Waring Co, Mermaid Lane, Philadelphia 18, Pa.

U18 **AUTOMATIC VALVES**—8-page booklet No. 299 covers Cash-Acme's entire line of automatic valves for pressure relief and pressure reducing. Each type is illustrated and described, including hot water heat controls. Dimensions and ordering data are given. A W Cash Valve Mfg Corp, 666 E Wabash Ave, Decatur 60, Ill.

U19 **FLOAT TRAPS** — 4-page brochure No. 950 gives complete specifications, capacities, pressures, sizes, and price lists of 3 principal Anderson float traps, widely used to drain condensate from steam equipment as well as moisture from air and gas equipment. V D Anderson Co, 1934 W 96th St, Cleveland 2, Ohio.

U20 **VALVES AND ACCESSORIES**—16-page catalog No. 100 contains detailed information on packless and packed valves, relief and check valves, strainers, driers, and liquid level gages for refrigeration, air conditioning, and industrial applications. Henry Valve Co, 3215 North Ave, Melrose Park, Ill.

U21 **STEAM TRAPS**—16-page booklet, Section 12 consists of diagrams and dimensions of Marsh steam traps. Construction and operating details are explained. Typical installations are shown. Marsh Heating Equip Co, Skokie, Ill.

U22 **NON-RETURN VALVES** — Golden-Anderson "Cushioned" single-acting non-return valves. Adaptability, construction, installation, sequence of operation, servicing and specifications are described. 6-page bulletin No. S-2. Golden-Anderson Valve Specialty Co, 2070 Keenan Bldg, Pittsburgh 22, Pa.

U23 **STEAM TRAPS** — Contains revised specifications and capacities on the complete line of Super-Silvertop steam traps. Anderson float traps, air release valves and pipe line strainers. Photographs, sketches, diagrams show trap arrangements, construction and operations. 36-page catalog, entitled "Solving Steam Trap Problems." V. D. Anderson Co, 1934 West 96th St, Cleveland 2, Ohio.

U24 **VALVE SIZING CHARTS** — A steam valve sizing chart covering the range from 1 to 1,000,000 lbs per hr and a butterfly valve sizing chart covering the range of 15 to 10,000 gpm. Single-sheet form No. 10394. Fischer & Porter Co, Dept 3940, Hatboro, Pa.

U25 **EXPANSION JOINTS**—Describes Yarway Gun-pakt and Glan-pakt expansion joints. Prices, weights, dimensions ,and typical installations are included. 16-page bulletin No. EJ-1912. Yarnall-Waring Co, Mermaid Lane, Philadelphia 18, Pa.

U26 **STEAM CAPACITY CHART** — Steam capacity chart for determining steam capacity required from safety valves to give protection in case of pressure reducing valve failure. Marine & Industrial Products Co, 3731-35 Filbert St, Philadelphia 4, Pa.

U27 **FLOW REGULATING VALVE**— Features Reynolds flow regulating valve for use where the exact setting of regulated flow of water or other liquids is required. Single-sheet bulletin. Reynolds-Shaffer Co, Dept G-56, 12100 Cloverdale Ave, Detroit 4, Mich.

U28 **REDUCING AND REGULATING VALVES**—8-page booklet No. 283 consists of changes, additions and improvements in a particular line of pressure reducing and regulating valves, which are suitable for domestic and many industrial uses. Also features a new automatic reseating relief valve. A W Cash Valve Mfg Corp, 666 E Wabash Ave, Decatur, Ill.

U29 **STEAM TRAPS**—32-page catalog No. 250 describes thermostatic steam traps; weight-operated traps for steam, air, gasoline; expansion steam traps; piston-operated steam traps; also 3 types of steam, air and gas separators. Capacity tables, installation diagrams, etc, are given. W H Nicholson & Co, 12 Oregon St, Wilkes-Barre, Pa.

U30 **DUPLEX TUBING**—12-page technical bulletin No. 1950 discusses duplex tubing developed for conditions where single-walled tubing cannot withstand simultaneous attack from two entirely different types of corrosive media. Installation methods are explained and illustrated in detail. Bridgeport Brass Co, 30 Grand St, Bridgeport 2, Conn.

U31 **AIR ELIMINATOR**—Form No. 119 gives specifications on the No. 12 Gorton high-pressure air eliminator used under steam pressure up to 150 lb. Gorton Heating Corp, Cranford, N. J.

U32 **BONNET VALVES** — 12-page booklet entitled "Crane Pressure-Seal Bonnet Valves," contains sizes, dimensions, ratings and tests for gate, globe angle and stop-check valves for high-pressure and high-temperature service. Crane Co, 836 S Michigan Ave, Chicago 5, Ill.

To order catalogs, use cards on page 189

U33 **PIPE FITTINGS** — Catalog No. 50F lists cast-iron and malleable pipe fittings for every pipeline use. Each listed size has price, weight and dimensions in addition to a photograph and dimension drawing of each fitting. Stockham Valves & Fittings, Box 2592, Birmingham 2, Ala.

U34 **SAMPLING VALVES** — 4-page folder No. 4 features Aloyco sampling valves; 2 standard types are illustrated in cross-sectional views. Working pressures and dimensions are also given. Alloy Steel Products Co, 1300 W Elizabeth St, Linden, N. J.

U35 **CONDUIT FITTINGS** — 4-page bulletin No. 201 covers the company's line of conduit elbows, couplings, nipples, goosenecks, running thread pipe and running thread nipples. List prices and sizes are included. Conduit Nipple Mfg Co, 1455 Spring Garden Ave, Pittsburgh 12, Pa.

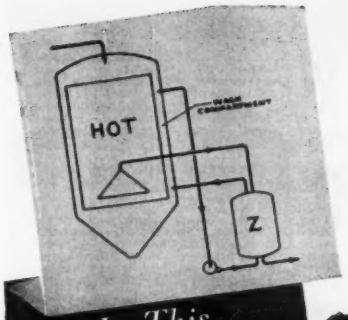
U36 **STRAINERS AND SEPARATORS** — 16-page catalog No. R-46-50A contains descriptions, dimensions, weights and list prices of the entire line of Adsco Y- and T-Type strainers, suction strainers, multi-flow separators and receiver - separators. American District Steam Co, North Tonawanda, N. Y.

U37 **AIR TRAPS** — 4-page bulletin No. 202 covers the selection and installation of air traps for automatic drainage of moisture from compressed air intercoolers, aftercoolers, receivers, separators and drip points. Armstrong Machine Works, Three Rivers, Mich.

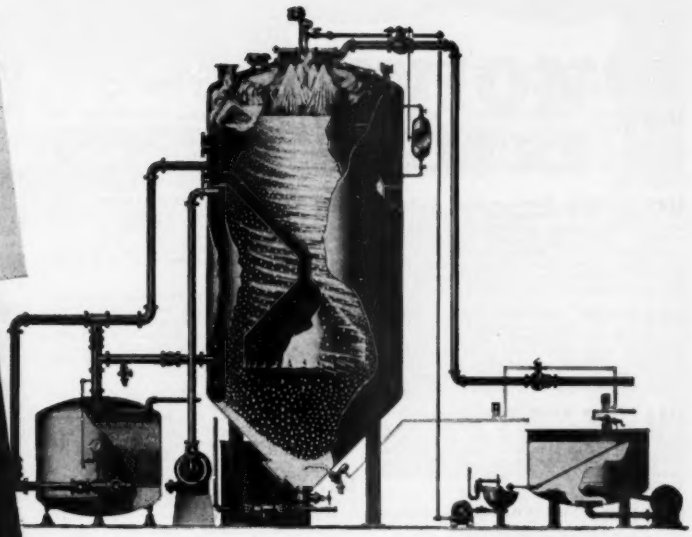
U38 **UNION AND VALVES** — 22-page booklet No. 11 illustrates complete line of Catawissa hot forged steel unions and valves. Data, specifications and prices are included. Also pictured are both standard and double extra heavy hot forged steel unions as well as the full stainless steel and alloy steel unions. Catawissa Valve & Fittings Co, Catawissa, Pa.

U39 **STEAM TRAP** — 4-page folder No. 115-P features the Series 100 steam traps for use with heating systems, drying and processing equipment. Specifications and prices are

(Continued on page 194)



In This
WORTHINGTON
HOT-Z
Deaerating Type Water Conditioning System . . .



Built-In Annular Wash Water Compartment Supplies and Reclaims Backwash Water

Independent of the Softening Process

No other Hot Zeolite System offers you so many advantages as this Worthington Hot-Z System. A quick review of the vital facts will show you why.

As you probably know, Hot Zeolite beds require periodic expansion to minimize packing and friction loss, and to insure efficient contact of each Zeolite particle with its share of dissolved impurities. This need for bed expansion occurs not only during the regeneration routine, but also several times during the period between regeneration routines. That's why it is important for you to use clean, softened water, preferably at normal operating temperature, for the reverse flow or "backwash" operation.

Worthington does it!

The Worthington Standard Hot-Z System with its backwash feature provides a built-in annular wash water compartment that supplies and reclaims backwash water . . independent of the system's softening process. In this compartment, backwash water is cleaned and maintained at normal operating temperature.

This backwash feature pays off particularly in systems employing filters because it *makes filter beds last as long as eight years.*

Other advantages

Worthington Hot Process Systems come equipped with modern, direct contact vent condensers. This means, no more of the scaling trouble that made the old-fashioned shell and tube types such a nuisance.

In addition, Worthington Hot-Z Systems operate on low-priced lime and salt. That's why the average installation saves enough in chemical costs to pay for itself in 3 years.

Get all the facts!

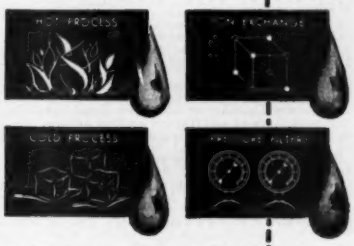
It will pay you to investigate the Worthington Hot-Z System thoroughly. Tell us your conditions of service and get our recommendation in terms of dollars and benefits. You'll find in our Hot-Z System, as in so much other equipment, *there's more worth in Worthington. Worthington Pump and Machinery Corporation, Water Treating Section, Dunellen, N. J.*

B-1

WORTHINGTON

WATER CONDITIONING

Worthington Makes More of the Equipment for All Types of Water Conditioning Systems



listed. Large labeled "X-ray" view included. Stickle Steam Specialties Co, Indianapolis 18, Ind.

U40 **PIPE THREADING EQUIPMENT**—8-page catalog No. A411 contains sizes and list prices, as well as illustrations of pipe threading equipment. Armstrong Mfg Co, Bridgeport Conn.

U41 **RUBBER PIPE**—8-page bulletin No. H-1 explains applications and comparative qualities of flexible rubber pipe. Economies in costs of installation and maintenance are explored in detail. Case histories are cited. Hewitt Rubber Div, Hewitt-Robins Inc, 240 Kensington Ave, Buffalo 5, N. Y.

U42 **STEAM TRAPS** — 4-page folder No. 101 covers Squires steam and air traps for pressures up to 600 lbs. How to size and install is explained in detail. Prices, capacities, and dimensions are also given. C E Squires Co, 18502 Syracuse Ave, Cleveland 10, Ohio.

U43 **STEAM HOOK-UPS**—64-page enlarged edition of Sarco Steam Hook-Ups for steam traps, air vents, and industrial temperature controls, with additional technical information. Sarco Co, Inc, Empire State Bldg, New York 1, N. Y.

U44 **PIPELINE STRAINERS**—6-page bulletin No. S-203 provides data on Yarway screwed strainers, ¼ to 3 in., and expanded details on flanged strainers ½ to 5 in. Yarnall-Waring Co, Mermaid Lane, Philadelphia 18, Pa.

U45 **NON-RETURN VALVES**—8-page bulletin No. S-1 gives informative data on cushioned triple acting non-return valves for steam control in case of damaged boilers or headers. Available in sizes 2 to 30 in. for pressures from 125 to 1500 psi. Golden-Anderson Valve Specialty Co, Keenan Bldg, Pittsburgh 22, Pa.

U46 **PACKLESS EXPANSION VALVES** —16-page bulletin No. R-35-51 explains design and construction of Corruflex, a corrugated packless expansion joint that requires no maintenance. Gives sizes, temperature and pressure ratings, dimensions and weights. American District Steam Co, North Tonawanda, New York.

U47 **CONVERTORS**—12-page catalog No. 303 describes the company's D line of convertors designed especially for use with hot water heating systems. Documented with selection charts and tables. The Patterson-Kelley Co, Inc, 28 Wilson Ave, East Stroudsburg, Pa.

U48 **ELECTRICALLY OPERATED TRAP**—4-page bulletin ET gives data on Johnson Electrap, an electrically operated trap for pumping or lifting service or for draining vacuum lines. Includes drawings of typical installations. The Johnson Corp, Three Rivers, Michigan.

U49 **VALVE PRICE LIST**—Price list, containing information on sizes, materials of construction, of the Jarecki line of valves including bronze and iron valves and cocks, iron and brass unions, expansion and swing joints. 8-page bulletin. Jarecki Valve Div, H K Porter Co, Inc, Drawer 2650, Tulsa, Okla.

U50 **SAFETY VALVE** — Contains detailed information on the Ross safety valve. Cross sectional view and installation data included. 4-page bulletin No. 304. Ross Operating Valve Co, 120 E Golden Gate, Detroit 3, Mich.

U51 **CAVITATION RESEARCH**—Describes cavitation-pitting tests that were conducted to solve some of the problems of cavitation and to determine the relative resistance to pitting of recently developed materials and techniques for applying these materials. 20-page bulletin No. 02B7581. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

U52 **NEEDLE VALVE**—Entire line of Kerotest forged steel union bonnet needle valves for high pressures and corrosive services described. Several advantages and price list given. 4-page folder. Kerotest Mfg Co, 2525 Liberty Ave, Pittsburgh 22, Pa.

U53 **PLANT PIPING SUPPORTS** — Complete line of pipe hangers and sway braces described. Load-deflection charts given. 6-page catalog No. 502. Bergen Genspring Corp, 15 Park Row, New York 7, N. Y.

U54 **HYDRAULIC STANDARDS** — Incorporating all recent changes and additions, a new edition of "JIC Hydraulic Standards for Industrial Equipment" is now available. 16-page booklet Miller Motor Co, 4027 N Kenzie Ave, Chicago 18, Ill.

U55 **PIPE-LINE FILTERS**—Describes, illustrates and gives applications and specifications for 75 pipe-line filters including pressure and vacuum types, for air and other gases. 8-page bulletin No. B-1A Dollinger Corporation, Rochester 3, N. Y.

U56 **BIN VALVES**—Data on Twistite double-closure bin valves for handling lump and fine materials. Illustrations and diagram given. Sheet No. 254-A. Stephens-Adamson Mfg Co, 274 Ridgeway Ave, Aurora, Ill.

U57 **STEEL PIPE**—Covers Spang CW Steel pipe and manufacture. Includes black and galvanized pipe in all standard sizes from ⅛ to 4-in., with tables of dimensions, weights, test pressures, threading data, and bundling schedules. 32-page bulletin No. 370. Spang-Chalfant Div, National Supply Co, P O Box 298, Pittsburgh 30, Pa.

U58 **STAINLESS TUBING**—Condensed data on analyses, oxidation resistance, thermal treatment and mechanical, electrical and physical properties of the 10 most popular austenitic and ferritic stainless tubing steels. 4-page bulletin No. 19. Babcock & Wilcox Tube Co, Beaver Falls, Pa.

PRIME MOVERS AND ACCESSORIES

V1 **MOTOR-GENERATOR SETS** — 8-page booklet No. GEA-5506 covers synchronous motor-generator sets from 30-8000 kw as a source of dc power for many industrial applications. Four typical installations are shown. General Electric Co, Schenectady 5, N.Y.

V2 **STEAM TURBINE UNITS** — 16-page bulletin No. 03B6801A gives informative data on 6 sizes of standardized steam turbine units — 11,510, 15,000, 20,000, 30,000, 40,000 and 60,000 kw — and the recommended 90,000 kw turbine. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

V3 **DIESEL ENGINES** — 4-page folder No. 321 describes the firm's Series 600 diesel engines that have a 12¾-in. bore, 15½-in. stroke, and a speed range from 360-625 rpm. Baldwin-Lima-Hamilton Corp, Philadelphia 42, Pa.

V4 **DIESEL ENGINE DESIGN** — 28-page booklet, entitled "10 Questions to Ask a Diesel Engine Salesman," asks and answers 10 questions pertaining to diesel engine design and gives full mechanical details. Murphy Diesel Co, 5217 W Burnham St, Milwaukee 14, Wis.

V5 **DIESEL ENGINES** — 4-page folder No. 320 covers the Baldwin Series 700 diesel engines which are 4-cycle with 17-in. bore, 20-in. stroke. Speed ranges from 257 to 275 rpm. Design features, specifications, cross-sectional drawings, performance curves, and ratings are included. Baldwin-Lima-Hamilton Corp, Philadelphia 42, Pa.

V6 **HEAVY-DUTY DIESEL** — 4-page bulletin No. 107 gives informative data on Murphy dual-fuel engines for burning natural gas or diesel fuel. Three models available ranging from 135 to 180 hp. Murphy Diesel Co, 5217 W Burnham St, Milwaukee 14, Wis.

V7 **DUAL-FUEL DIESEL** — 8-page bulletin No. 177 describes the Nordberg four-cycle Type FSG-16x16 in. Duafuel Diesel engine burning gas and oil, and built in supercharged or non-supercharged units. Nordberg Mfg Co, Milwaukee 7, Wis.

V8 **MULTISTAGE TURBINE** — 12-page booklet No. S-146 explains the Terry multistage turbine design. Illustrated with photos and drawings it gives data on casing, lagging, blades, nozzles, wheels, shafts, diaphragms, bearings, interstage and end glands, governors, synchronizers, governor and nozzle control valves, etc. Terry Steam Turbine Co, Dept P, Hartford, Conn.

V9 **HYDRAULIC TURBINES** — 56-page catalog No. 02B7301 describes the design and construction of Francis propeller and impulse type, hydraulic turbines and such auxiliaries as pressure regulators, special high head valves, butterfly valves and cabinet type governors for large units. A section explains the firm's ability to produce hydraulic turbines of any practical magnitude. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

V10 **TURBINE-GENERATORS** — 40-page booklet No. H-18 describes and pictures nearly 50 turbine-generator installations, both utility and industrial. Brief discussions of generator and exciter cooling methods are included. Elliott Co, Jeannette, Pa.

V11 **DIESEL ENGINES** — 28-page bulletin No. 187 gives design data on Nordberg 2- and 4-cycle stationary and marine diesel engines, gasoline marine engines, Symons cone crushers and screens, mine hoists, air and gas compressors, etc. Nordberg Mfg Co, Milwaukee 7, Wis.

★ **2-CYCLE DIESEL ENGINES** — Covers Series 71 2-cycle single and multiple diesel engine units from 2-24 cylinders with power from 32 continuous to 780 intermittent hp. Data on design and interchangeability of parts, power chart, and illustrations given. Catalog. Detroit Diesel Engine Div, General Motors Corp, 13402 W Outer Drive, Detroit 28, Mich. (*Write direct to manufacturer on company stationery giving name and title.)

V12 **4-CYCLE DIESEL ENGINES** — Pictures and describes the 4-cycle, direct injection, totally enclosed DR diesel engines. Photographs, cut-away drawings and specifications included. 18-page bulletin No. S-500-B52A. Worthington Pump & Machinery Corp, Harrison, N. J.

V13 **LOW POWER DIESELS**—Illustrates and describes the Nordberg Type 4FS, 1- and 2-cylinder, 4½- by 5¼-in. diesel engines which are rated at from 10-30 hp at 1200-1800 rpm. 6-page bulletin No. 183. Nordberg Mfg Co, Milwaukee 7, Wis.

PUMPS

W1 **CENTRIFUGAL PUMPS** — 16-page booklet No. 7233 discusses the Ingersoll-Rand Class HMTA and HMTB multi-stage, horizontally-split, centrifugal pumps for pressures up to 1200 psi. Design details and advantages are furnished. Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.

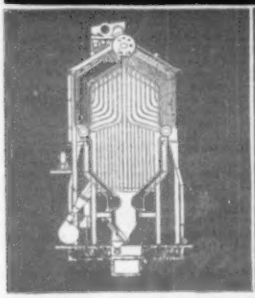
W2 **CLOSE-COUPLED PUMP** — 6-page folder No. 52B6140B features Allis-Chalmers Electrifugal close-coupled pump mounted in an exclusive unit-cast frame which has no adapter or joints between motor and pump. Three available styles are shown. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

W3 **CONTROLLED VOLUME PUMP** —Single-Sheet bulletin No. MP-50 presents a new Milton Roy controlled volume pump for handling minute quantities of clear liquids. Ap-

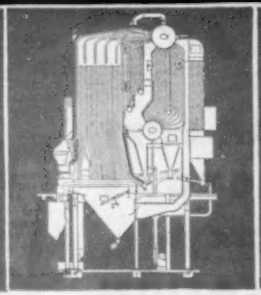
(Continued on page 196)

• DIRECTORY of UNION •BOILERS

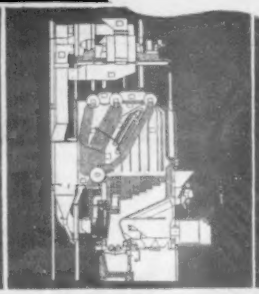
UNION IRON WORKS • ERIE, PENNSYLVANIA



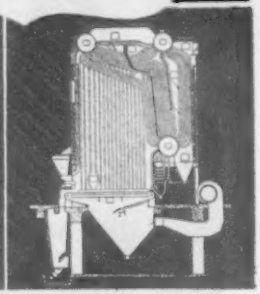
H-TYPE, a self-contained steel cased generator unit for any fuel or firing method, for any desired capacity or pressure.



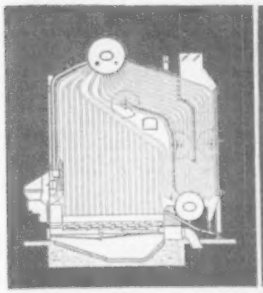
O-TYPE, 2-drum steam generator with fully water cooled furnace for high capacity output. Adaptable to tile, insulation and casing type setting.



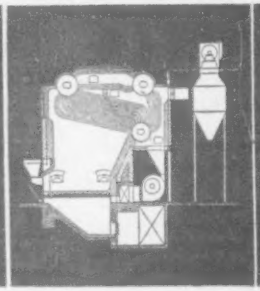
B-TYPE, 4-drum design. Gas, Oil or low fusion Western coal can be readily burned in this furnace which is water cooled and provided with cast iron armor protection.



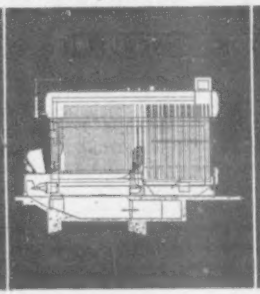
A-TYPE, 3-drum design with special front bank tube curvatures to increase the radiant surface, accelerating speed of circulating and rate of steaming.



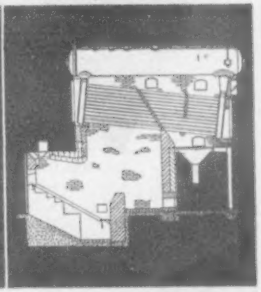
O-TYPE, fully water cooled furnace with all water wall supply tubes inside the setting, which is tile, insulation and casing type.



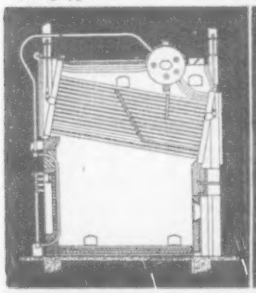
L-TYPE, for low headroom conditions, two top drums at the same level providing maximum steam disengaging surface. Many sizes can be shipped shop assembled.



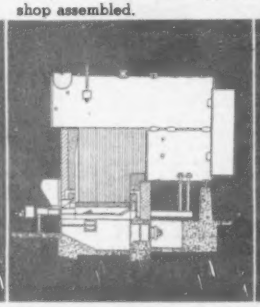
S-TYPE, provides water walled furnace that does not require circulator connections, the setting except for front and bridge walls is constructed of refractory tile water cooled, insulated steel panel cased.



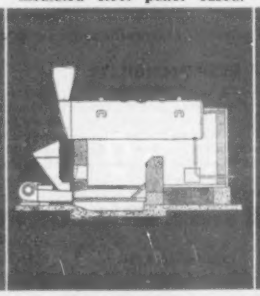
LD-TYPE, long drum with box header construction with either single or double horizontal drums. A thoroughly standardized unit built in units as large as 7,000 square ft. of heating surface.



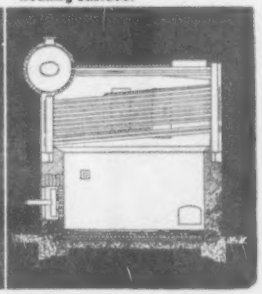
XD-TYPE, cross drum box header type, with steep inclination to the main tube bank to promote rapid circulation — Smaller sizes can be shipped fully assembled or tube bank assembled and drum detached.



UNIVERSAL, fire tube boilers sizes to 300 H.P. (1) for brick setting—(2) steel cased refractory lined in self-contained units—(3) either of these styles with water cooled furnaces.

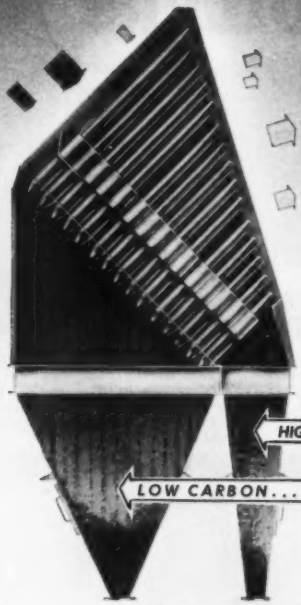


LITTLE GIANT, a shop assembled unit combining pressure element and steel refractory lined furnace — one piece boiler shell — 9 sizes 10 to 75 H.P. for 100 or 150 lb. W.S.P.



KD-TYPE, a knocked-down cross drum type boiler adapted from the Union Cross Drum Power Boiler design. No field welding required. 14 sizes from 2996 thru 34, 119 sq. ft. E.D.R. S.H.B.I. steam rating.

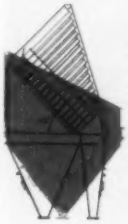
REFIRE HIGH CARBON DUST *without* recirculating fly-ash



. . . install pd

TUBULAR DUST COLLECTORS *arranged for* DECANTATION

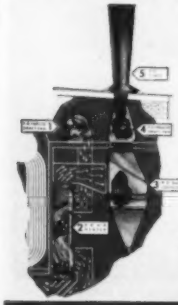
In a single phase P-D tubular collector, designed for decantation and *requiring no additional pressure drop*, it is now possible to separate the large particles of high carbon content from the non-combustible finer particles.



Fly-ash from spreader stoker-fired units, consisting of up to 40% high carbon particles, can effect considerable savings when re-injected. It is necessary to effect separation, however, since the non-combustible smaller particles remaining in the system increase in concentration, causing erosion and possible poor combustion due to spotting.

Space requirements for the decantation design are not as great in area and only slightly higher than a standard tubular . . . and, collection efficiency is high. Superimposed sketch shows comparative size.

Why waste fuel? Investigate this collector today, it will soon pay for itself. Write our Sales and Project Engineers for Bulletin 260 D.



UNIT RESPONSIBILITY

Prat-Daniel, through its sales and project engineers, The Thermix Corp., offer a complete complement for handling the air gas stream: Forced Draft Fans, Air Pre-heaters, Tubular Dust Collectors, Induced Draft Fans and Fan Stacks. This unit responsibility, by a well known firm, relieves the engineer of the responsibility for one of the most important functions in a steam generating plant.

Sales and Project Engineers

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GREENWICH, CONN.

Canadian Affiliates: T. C. CHOWN, LTD.
1440 St. Catherine St. W., Montreal 25, Quebec
50 Abell St., Toronto 3, Ontario

Designers and Manufacturers

PRAT-DANIEL CORPORATION
SOUTH NORWALK, CONN.

plications include laboratory and research work, pilot plant and semi-plant scale operations, etc. Milton Roy Co, 1300 E Mermaid Lane, Philadelphia 18, Pa.

W4 **CONDENSER CIRCULATORS** — Catalog No. G-1050 illustrates and describes condenser circulators in standard sizes to 100,000 gpm, and in special sizes to 200,000 gpm. Designed for power station service, the pumps are vertical, mixed-flow units of large capacity and low head. Economy Pumps Inc, Hamilton, Ohio.

W5 **CENTRIFUGAL PUMP** — 12-page bulletin No. CP-749B discusses advantages of Mission centrifugal pump having streamlined flow from its concentric casing. Applications, construction details and performance curves are included. Mission Mfg Co, P O Box 4209, Houston 14, Texas.

★ **PROCESSING PUMPS** — 12-page booklet features a full line of pumps for handling corrosive and non-corrosive liquids, solids-carrying liquids and dry and semi-dry materials. Yeomans Brothers Co, 1433 N Dayton St, Chicago 22, Ill. (*Write direct to manufacturer on company stationery giving name and title.)

W6 **CENTRIFUGAL PUMPS**—4-page folder No. W-318-B21 illustrates and outlines features of Worthington 2-stage, double-suction, centrifugal pumps. Dimensions are given. Worthington Pump & Machy Corp, Harrison, N. J.

W7 **SEWAGE EJECTOR SYSTEM**—12-page catalog No. S-50 discusses the company's pneumatic sewage ejector system. Diagrams and features as well as a partial list of users are given. Blackburn-Smith Mfg Co, Inc, Hoboken, N. J.

W8 **CENTRIFUGAL PUMPS** — 16-page bulletin No. 52B6059G is a handy guide to selection of centrifugal pumps including close-coupled, pedestal, double suction single-stage, multi-stage, self-priming, etc, pumps. Head capacity charts and tables for various types of the pumps are given. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

W9 **PUMPS**—Bulletins No. S-204 and Q-50 illustrate and describe Warren-Quimby screw and Rotex pumps, recent additions to the firm's line of centrifugal and reciprocating pumps. Both are built in 2 standard types, gear-in-head and external gear and bearing. Warren Steam Pump Co, Inc, Warren, Mass.

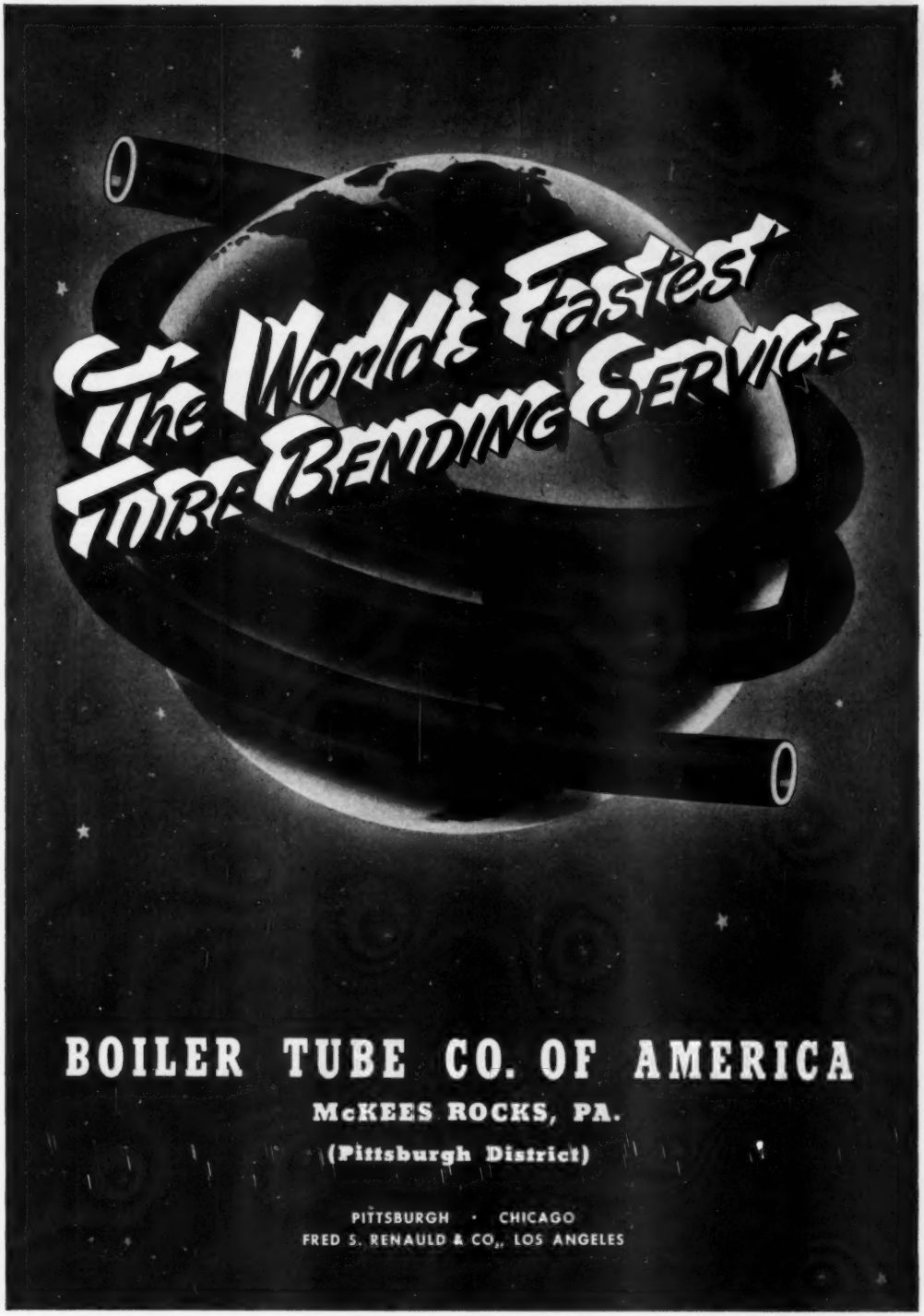
W10 **CENTRIFUGAL PUMPS** — Bulletin No. W-306-B1 discusses Monobloc centrifugal pumps, types DD DNE, DDN, DDNE and DNH & single- and two-stage, size 1 to 5. The pumps are designed for small boiler feed, cooling service and condensate service as well as circulation systems and sanitary drinking water supply. Worthington Pump & Mchy Corp, Harrison, N. J.

W11 **ROTARY PUMP**—8-page booklet No. L313A-B describes the new De Laval A313A Imo pump, a general service screw-type rotary pump designed for pumping petroleum products, and other light or viscous fluids as required for rotary and steam atomizing oil burners, oil transfer, lubrication, hydraulic systems, etc. Capacities to 85 gpm—pressures to 150 psi. De Laval Steam Turbine Co, Trenton 2, N. J.

W12 **AIR-POWERED PUMPS** — 16-page booklet No. 450 furnishes design details, advantages and applications of "airROYmetric and airROY" air-cylinder powered chemical pumps, automatic chemical feed systems, and automatic hydrostatic test pressure systems. Milton Roy Co, 1300 E Mermaid Lane, Chestnut Hill, Philadelphia 18, Pa.

W13 **ROTARY PUMPS** — 6-page bulletin No. 307 illustrates design, construction, maintenance, operation and application of rotary pumps. Blackmer Pump Co, 1904 Century S W, Grand Rapids 9, Mich.

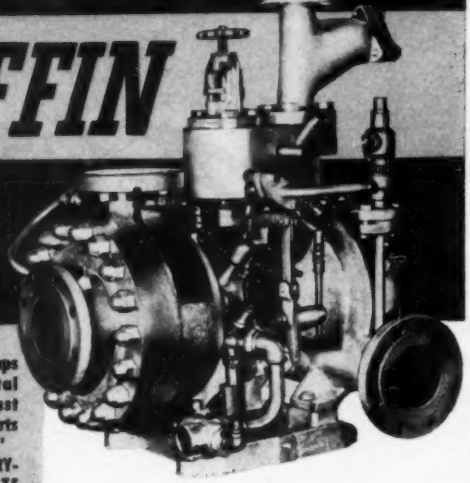
(Continued on page 198)


The World's Fastest
TUBE BENDING SERVICE
BOILER TUBE CO. OF AMERICA
McKEES ROCKS, PA.
(Pittsburgh District)
PITTSBURGH · CHICAGO
FRED S. RENAULD & CO., LOS ANGELES

Solve tough pumping problems in marine and general service

with **COFFIN**

TURBO PUMPS



Installing COFFIN Pumps Gives You These Vital Advantages plus Fast Service on Wearing Parts — ALSO "SAME DAY" SHIPMENTS OF FACTORY-GUARANTEED REBUILTS

- **Steam Pressures to 850 PSI**
- **Back Pressures to 200 PSI**
- **Pump Capacities to 500 GPM**
- **Discharge Pressures to 1100 PSI**
- **Matched Pump, Turbine and Governors in One Lightweight Compact Assembly**
- **Efficient Pump and High Speed Two-Bucket Row Turbine Minimizes Steam Consumption**
- **Interstage Leakage is Eliminated**
- **All Parts Made to Gauge and are Replaceable Without Fitting**

SPECIFIED FOR MINIMUM STEAM CONSUMPTION AND LONG, TROUBLE-FREE OPERATION —

Superior Coffin engineering provides 3 to 12 stage performance from compact 1-stage turbo pumps composed of standarized, easily replaced stock parts. The high efficiency Coffin Pumps combined with high speed, two-bucket row turbines conserve on steam at shaft speeds as high as 7200 RPM. Compact, with extremely quiet, vibrationless operation, Coffin Turbo Pumps reduce lost time due to pump failures by providing smooth, dependable performance over long periods of continuous service. For fast service on wearing parts or immediate shipment of a guaranteed rebuilt, call Coffin or your nearest Coffin representative.

AVAILABLE NOW! Write for your copy —

Complete data on Turbo Pumps for every marine and industrial application. Ask for your copy of the new Coffin File Folder, today!

THE **J.S.COFFIN, Jr. COMPANY**

324 SOUTH DEAN STREET ENGLEWOOD, NEW JERSEY

REPRESENTATIVES IN ALL PRINCIPAL CITIES

W14 **CENTRIFUGAL PUMP** — 4-page folder No. 7212 discusses the Class CRVR cradle-mounted centrifugal pump for process and refinery service. Specifications are listed. Ingersoll-Rand, 11 Broadway, New York 4, N. Y.

W15 **VACUUM PUMPS** — 12-page catalog No. 50-B-13 covers the cycloidal vacuum pumps, a positive displacement pump designed for heavy-duty suction service, such as required in paper mills. Roots-Connersville Blower Corp, 900 W Mount St, Connersville, Ind.

WATER TREATMENT

▼

X1 **CORROSION INHIBITOR** — Leaflet No. 25X7582 explains the manner in which Allis-Chalmers No. 160 Series corrosion inhibitor acts by neutralization and by surface absorption to control the corrosion of steam and condensate lines. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

X2 **PRECIPITATING SOFTENER** — Bulletin No. W-212-B6 discusses the Type CM precipitating softener and coagulator, in which energy for floc preparation is mechanical. Also describes the flow circuit, diagrams the flow, and answers 9 questions in a system appraisal. Worthington Pump & Machy Corp, Harrison, N. J.

X3 **TEST KIT**—4-page folder No. 2RE50 features equipment and reagents for conductometric determination of solids in boiler water and steam. A quick and simple method for determining the solids content is described and illustrated. Hall Laboratories, Inc, Hagan Bldg, Pittsburgh 30, Pa.

X4 **CHEMICAL FEEDERS** — 12-page publication No. RP-9080 describes both dry and solution systems of feeding chemicals to closed vessels such as boilers and chemical mixing tanks. % Proportioneers, Inc, % P O Box 1442, Providence 1, R. I.

X5 **WATER DEMINERALIZER** — Folio contains catalog sheets and other pertinent information regarding Penfield ion exchange systems ranging in capacity from 30 to 1,000 gph. Penfield Mfg Co, Inc, 19 High School Ave, Meriden, Conn.

X6 **WATER TREATMENT** — Two folders are offered. One deals with the treatment of condenser water. The other tells about Luminite boiler water treatment, a coagulant treatment formulated to the customer's specifications, after an inspection and survey on operating conditions. Warren Refining & Chemical Co, 750 Prospect Ave. Cleveland 15, Ohio.

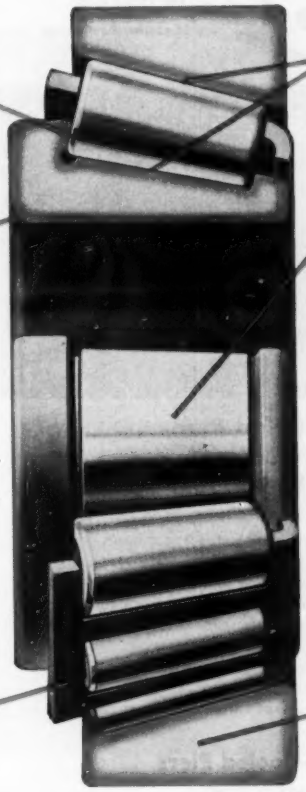
X7 **CHLORINIZER** — 4-page brochure No. 840-G27 discusses the Builders Model HCVS high capacity, visible flow chlorinizer designed to meter chlorine gas accurately and to deliver a chlorine-water solution to the point of application. Builders-Providence Inc, 335 Harris Ave, Providence, R. I.

X8 **WATER CONDITIONING EQUIPMENT**—4-page folder No. WS-50-14 furnishes a complete line of equipment for any purpose requiring treated water. Tells where each is used, what it does and the process. Foster Wheeler Corp, 165 Broadway, New York 6, N. Y.

X9 **FILTRATION EQUIPMENT** — 20-page catalog No. 691 illustrates and compares methods and equipment for industrial water filtration. Cutaway views, operating data and piping suggestions for single and battery installations are provided. R P Adams Co Inc, 220 E Park Drive, Buffalo 17, N. Y.

(Continued on page 200)

10 reasons why your best bet in bearings is TIMKEN®



1 *Rib of cone maintains roller alignment, prevents skewing, assures maximum bearing capacity.*

2 *Generous radius permits greater shaft strength.*

3 *Available in 26 different types.*

4 *Precision manufactured. Available with runout tolerance of only seventy-five millionths of an inch (.000075").*

5 *Soft steel cage separates rollers, prevents scuffing.*

6 *Case-hardened surfaces resist wear.*

7 *Micro-inch surface finish makes friction negligible.*

8 *Available in 5850 sizes.*

9 *Made from Timken fine alloy steel for long bearing life.*

10 *Tough inner core resists shock.*

OTHER tapered roller bearings may *look* like Timken® bearings. But there is no other tapered roller bearing which gives you as many important advantages as you get with Timken.

Ten of these advantages are listed above. They all stem from the fact that the Timken Company is the foremost producer of tapered roller bearings and leads in (1) advanced design, (2) precision manufacture, (3) rigid quality control, (4) special analysis steels.

Be sure that every tapered roller bearing *you* use carries the name "Timken", the trade-mark of The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ◎ AND THRUST → ◎ ← LOADS OR ANY COMBINATION ✳

How long have these piers been in service?

- ☐ 3 months
- ☐ 6 months
- ☐ 12 months
- ☐ 18 months

(Answer contained in copy below)

Read how Bernitz Air-Cooled Pier and Sill Front Wall Construction (PAT. PEND.) solves clinker and fly-ash problems:

EQUIPMENT: Edge Moor Iron Works Boiler with Hoffman Traveling Grate Spreader Stoker. Rating 85000# steam per hour.

PROBLEM: Boiler in plant of leading textile manufacturer forced to operate at exceedingly high rating for long periods. Pier breakdowns, reduced efficiency, heavy clinker and fly-ash formations cause excessive down-time for maintenance with resultant high cost.

SOLUTION: Bernitz Pier and Sill Front Wall Construction of Silicon Carbide (Carbofrax*) completely eliminates clinker and fly-ash adherance . . . practically continuous operation for 18 months without down-time!

Only Bernitz Air-Cooled Piers and Sill Construction offers such amazing savings:

- ✓ Outlasts other types more than 8 to 11
- ✓ No clinker adhesion . . . piers maintain shape and save fuel
- ✓ Installed quickly

Discover the meaning of these amazing savings in your plant — write today outlining your problems.

*"Carbofrax" is the registered trade mark of, and indicates manufacture by, the Carborundum Co.

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FURNACE APPLIANCE CO.
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IN CANADA: WILLIAMS & WILSON, LTD., MONTREAL AND TORONTO; THE WINNIPEG SUPPLY AND FUEL CO., LTD., WINNIPEG

X10 **BOILER WATER CONDITIONING**—16-page bulletin No. SM-9020 explains methods of applying treating chemicals to boiler feedwater systems and boiler drums. Proportioneers Inc, 9 Codding St, Providence 1, R. I.

X11 **SCALE AND CORROSION PREVENTION**—12-page catalog No. 551 covers complete scope of water treatment for every need. Tells what types of treatment are required to prevent scale formation, corrosion, foaming and embrittlement in boilers, etc. Elgin Softener Corp, Elgin, Ill.

X12 **PACKAGED BOILER WATER TREATMENT** — 4-page folder No. 49 explains the Nalco system designed to offer the protection and security of a complete water treatment program to operators of packaged-boiler installations. National Aluminate Corp, 6222 W 66th Pl, Chicago, Ill.

X13 **HARDNESS TESTS** — 4-page folder No. 1RE50 explains the extremely rapid, simple and accurate new "one-minute tests" for determining water hardness. Procdeures, reagents and equipment for the tests are pictured and described. Hale Laboratories Inc, Hagan Bdg, Pittsburgh 30, Pa.

X14 **SCALE CONTROL** — 4-page bulletin No. 100 discusses Aqua electric scale control unit which controls the formation of scale in equipment which uses water or is cooled by water. Dimensions and maximum capacities are given. Aqua Electric Scale Control Inc, 2028 E 22nd St, Cleveland 15, Ohio.

X15 **DEIONIZATION**—12-page booklet, entitled "Amberlite Monobed Deionization," consists of the history, behavior, present performance and potential uses of Monobed ion exchange systems in water-conditioning, chemical process and other industries. Resinous Products Div, Rohm & Haas Co, Washington Sq, Philadelphia 5, Pa.

X16 **DEMINERALIZER** — Covers the new Penfield permanent cartridge demineralizer for laboratories and other users of up to 10 gph of high purity water. Diagramatic drawing of the unit together with operation and price details. 6-page brochure. Penfield Mfg Co, Inc, 19 High School Ave, Meriden, Conn.

X17 **WATER FILTERS** — Illustrates the heavy-duty construction of Model SC self-cleaning filters designed to filter large volumes of water and other liquids rapidly and at low cost. Typical installations, piping arrangements, full specifications also shown. 6-page bulletin. Sparkler Mfg Co, Mundelein, Ill.

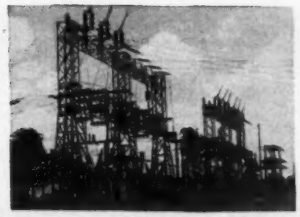
X18 **ION EXCHANGE EQUIPMENT**—Water-conditioning equipment described, including softeners, hydrogen zeolite, de-ionizers and the Ilco-Way mixed-bed de-ionizer. 8-page bulletin No. A. Illinois Water Treatment Co, 899 Cedar St, Rockford, Ill.

X19 **DEIONIZATION** — Folder, entitled "Zero Hardness by Amberlite Deionization" is designed to evaluate the usefulness, applications and recommended layout of ion exchange to provide water almost totally free from hardness, carbon dioxide and silica. 4-page folder. Rohm & Haas Co, Resinous Products Div, Washington Square, Philadelphia 5, Pa.

X20 **STABILIZER**—8-page folder describes Calgon, a material that stabilizes the dissolved iron and manganese so that the water remains clear. Method of treatment and some typical experiences are listed. Calgon Inc, Hagan Bldg, Pittsburgh 30, Pa.

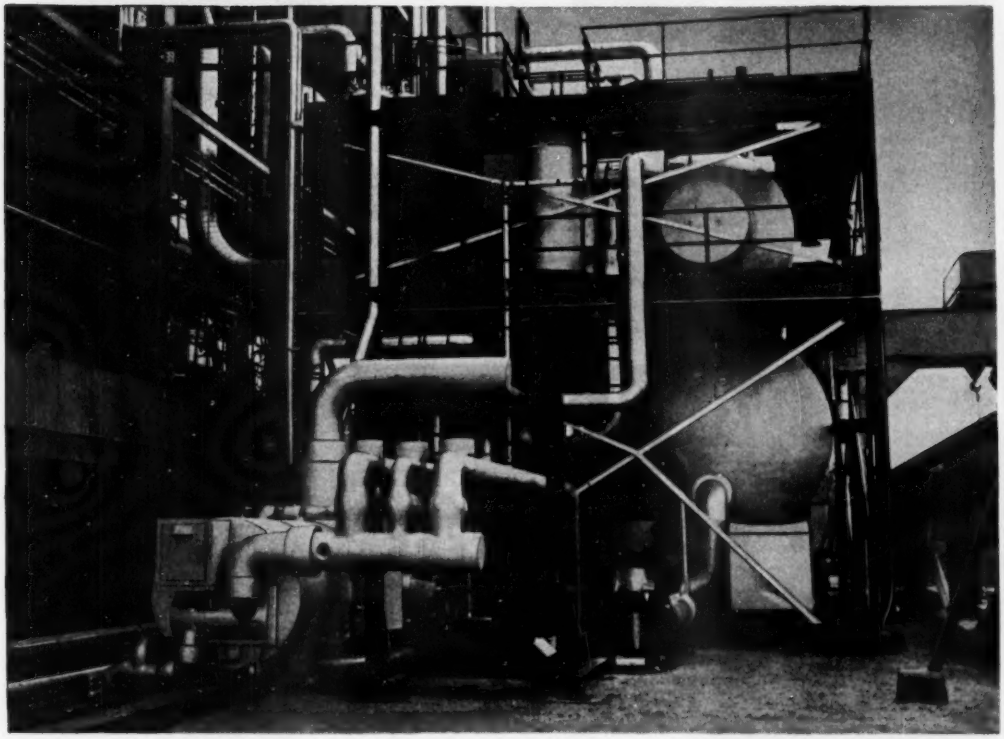
X21 **REACTORS**—16-page publication No. 5001 features the Cochrane-Liquon sludge contact reactor for the clarification and softening of cold water. Operation, applications and advantages

(Continued on page 202)



Where heat is a production tool!

—Carolina Power and Light Company uses K & M Insulations in Lumberton Plant



Steam plant, Carolina Power and Light Co. Lumberton Station. Shown are evaporator, evaporator pre-heater, deaerating heater, and storage tank. "Featherweight" 85% Magnesia used to insulate surfaces up to 600°F.; used in combination, with K&M Hy-Temp to insulate surfaces above 600°. Weatherproof finish. ENGINEERS AND CONSTRUCTORS: Ebasco Service, Inc., INSULATION CONTRACTORS: Guy M. Beaty Company, Charlotte, N.C.

These Keasbey & Mattison Insulations deliver more steam at less cost!

You'll find Keasbey & Mattison insulations—K&M "Featherweight" 85% Magnesia, and K&M Hy-Temp—wherever exacting steam temperature control is a must—in power stations, steamships, oil refineries, chemical plants, hospitals. These two insulations have a reputation for their cost cutting services—"Featherweight" 85% Magnesia for temperatures up to 600°F.; and in combination with K&M Hy-Temp Insulation when difficult heat control situations arise in the temperature range from 600°F. to 1900°F.

Your Keasbey & Mattison Distributor, who is an experienced applicator, will be glad to give you complete information on any of the K&M Insulations for the 40°F. to 1900°F. service range. Or, write us.

Nature made Asbestos...
Keasbey & Mattison has made it serve mankind since 1873

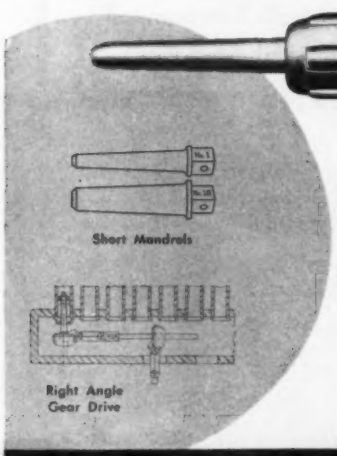
KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

In Canada: **ATLAS ASBESTOS CO., LTD., MONTREAL, TORONTO, WINNIPEG, and VANCOUVER**

IDEAL

You'll Get More Efficiency with

Series 1500 Tube Expanders



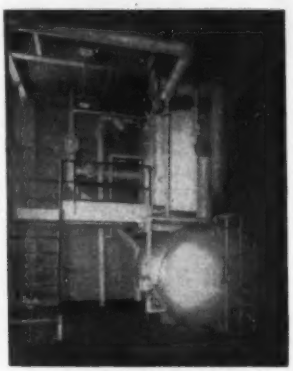
For installation and maintenance of tubes in drums, headers and similar water tube boilers.

A combination of short mandrels and right angle gear drive speeds up operation and assures efficiency with far less operator-fatigue. The new and smaller reinforced gear drive enters most hand-holes.

See Your Dealer or Write Us Today!

THE GUSTAV **WIEDEKE** COMPANY
DAYTON 1, OHIO

HOPPES FEEDWATER HEATERS



Deaerating feedwater heater serves as condensation return point for trapped and pumped returns from heating system

DEAERATING:
For medium and high pressure Central Stations; modern Industrial and Process Plants; Steam Heating Plants and all Modern Power Plants which have boilers operating at medium and high pressures.

NON-DEAERATING:
For Laundries; small Industrial Plants; Institutions and all smaller Power Plants where boilers are operated at lower pressures and where economy of investment is desired.

PLATE TYPE:
Deaerating heaters of plate type are designed for capacities up to 85,000 pounds per hour. Non-deaerating heaters include capacities up to 120,000 pounds per hour.

CAST IRON:
(Integral Unit) Designed to meet space limitations, their outlet capacities range from 3,000 pounds per hour to 15,000 pounds per hour.

STEEL TYPES:
These heaters are more diversified and are obtainable as follows—Vertical or Horizontal heaters with integral storage; vertical heaters mounted on vertical storage tanks; vertical heaters mounted on horizontal storage tanks and horizontal heaters mounted on horizontal storage tanks.

ENGINEERING SERVICE:
Hoppes engineers work with you to assure that your individual and specific requirements are provided for in full. Let's talk it over—get the economy angle.

HOPPES MANUFACTURING CO., Inc.
Established in 1881
SPRINGFIELD, OHIO

as well as illustrations are given. Cochrane Corp, 17th St & Allegheny Ave, Philadelphia 32, Pa.

X22 **WATER SERVICES** — 4-page folder, entitled "Let's Consider Your Whole Water Problem," tells about the firm's industrial water engineering services offered in the fields of water procurement, treatment, usage and disposal. Typical service problems are discussed, with illustrations showing flow schemes of water in process and disposal. Hall Laboratories Inc, Hagan Bldg, Pittsburgh 30, Pa.

X23 **CHLORINE TREATMENT** — 4-page Bulletin No. A-1A-4 summarizes present-day processes and equipment for the chlorine treatment of municipal water. Flow diagrams and illustrations describe use and advantages of process instrumentation in municipal water treatment. Fischer & Porter Co, 1000 County Line Rd, Hatboro, Pa.

X24 **DEMINERALIZING EQUIPMENT** —Two bulletins offered. 2-page bulletin No. BFT-1 gives data on external boiler feedwater treating equipment including both zeolite and chemical type water softeners, demineralizing equipment and silica removal equipment. Bulletin DM comprises five types of partial demineralizing equipment and various types of degasifying apparatus. Both bulletins include information on silica removal by ion exchange and the Hungerford & Terry UN-A-Bed demineralizing unit. Hungerford & Terry, Inc, Clayton, N. J.

X25 **THRESHOLD TREATMENT** — Folder discusses prevention of lime scale deposition by threshold treatment of water with Calgon, a vitreous sodium phosphate. Typical applications cited. Calgon, Inc, Hagan Building, Pittsburgh 30, Pa.

X26 **HYDROGEN ZEOLITE**—Data on Cochrane hydrogen zeolite softeners. Complete description of the process and the field of application, showing the advantage of hydrogen zeolite softening and its relation to the sodium zeolite softening process. 16-page bulletin No. 4530. Cochrane Corp, 17th St & Allegheny Ave, Philadelphia 32, Pa.

X27 **WET WATER** — Brochure entitled, "Wet Water—what it is and what it can do for you," is a layman's description of current industrial applications of wet water and the Aquadyne system of making an economic supply available without elaborate equipment. 8 pages. Aquadyne Corp, 220 E 42nd St, New York, N. Y.

X28 **ZEOLITE SOFTENERS**—Explains the sodium zeolite softening process and includes a definition of terms, and description of siliceous zeolites and non-siliceous zeolites. Bulletin No. 4520. Cochrane Corp, 7th St & Allegheny Ave, Philadelphia 32, Pa.

WELDING

▼

Y1 **ENGINE-DRIVEN WELDER** — Form No. 1304-7500 contains specifications and applications of Lincoln "Shield-Arc SAE" engine-driven welder. Lincoln Electric Co, 12818 Coit Rd, Cleveland 1, Ohio.

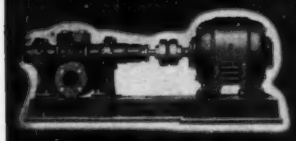
Y2 **ALLOYS AND FLUXES**—32-page pamphlet is a buyer's guide to the complete line of All-State alloys and fluxes for welding, brazing, soldering, cutting, and tinning. All-State Welding Alloys Co, 273 Ferris Ave, White Plains, N. Y.

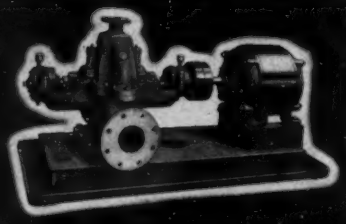
Y3 **BRONZE ELECTRODES**—24-page reference book No. W-17 consists of technical and pertinent information about every bronze electrode which the firm manufactures along with recommended welding techniques, procedures, and machining suggestions. Ampco Metal Inc, 1745 S 38th St, Milwaukee 46, Wis.

Y4 **WELDING PROCESS** — 26-page reprint, entitled "The Aircomatic 'R' Welding Process," discusses the fundamentals of metal-arc transfer in

(Continued on page 204)

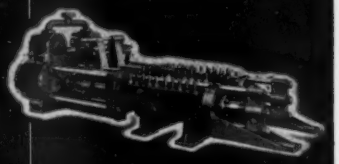
Warren-Quimby
Gear-in-head Screw Pump





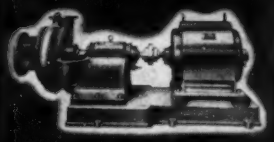
Warren Condensate Pump

Warren Horizontal Duplex
Hydraulic Pump



WARREN PUMPS

Maintain efficiency • Operate at low cost • Are long-lived



Warren Type "L" Single-Stage
Single-Suction Liquor Pump

CENTRIFUGAL

Single and Multi-stage
Pressure range: Up to 1200 P. S. I.
Capacities: Up to 50,000 G. P. M.
Types: Horizontal and Vertical
Impellers: Open or Enclosed

RECIPROCATING

Horizontal and Vertical Single Piston
Horizontal and Vertical Duplex Piston
Single and Duplex Outside Packed Plunger
Single, Duplex and Compound Hydraulic
Steam Heat Vacuum
Automatic Pump and Receiver, etc., etc.,

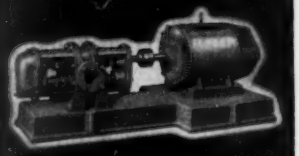
WARREN-QUIMBY SCREW PUMPS

Gear-in-head and External Gear and Bearing
Capacities: Up to 3000 G. P. M.
Pressures: Up to 200 P. S. I. on low viscosity liquids; practically unlimited on high viscosity liquids
Horizontal or Vertical Mounting

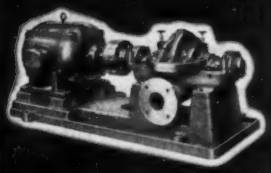
WARREN-QUIMBY ROTARY PUMPS

Gear-in-head and External Gear and Bearing
Capacities: Up to 1000 G. P. M.
Pressures: Up to 250 P. S. I.
Horizontal or Vertical Mounted

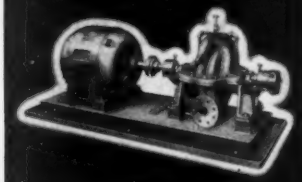
Send your pumping problem to us; Warren Engineers will recommend the right pump for the job.



Warren-Quimby External Gear
and Bearing Rotex Pump



Warren Type DBL, Single-Stage
Double Suction, Centrifugal Pump



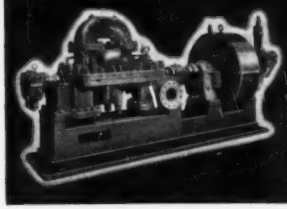
Warren Two-Stage Volute
Centrifugal Pump

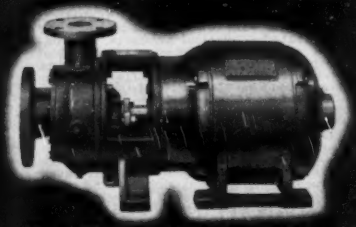
WARREN QUIMBY PUMPS

WARREN STEAM PUMP COMPANY, INC.

WARREN, MASSACHUSETTS

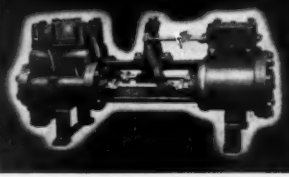
Warren 4- and 6-Stage
Centrifugal Pumps





Warren "Compacunit"—4 Types—42 Sizes

Warren Horizontal "Realwear"
Duplex Piston Pump



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inert-gas-shielded arc welding. Air Reduction, 60 E 42nd St, New York 17, N. Y.

Y5 **WELDING SUPPLIES** — 8-page bulletin No. 467 shows the Lincoln line of welding supplies, including electrode holders, connectors, wire brush, ground clamps, cable lugs, arc torch, protective shields, welding cable, etc. Lincoln Electric Co, 12818 Coit Rd, Cleveland 1, Ohio.

Y6 **AC WELDER**—Broadside No. 1301 features the Lincoln 200 amp Fleetwelder, which simplifies ac arc welding. Specifications, typical applications are given. Lincoln Electric Co, 12818 Coit Rd, Cleveland 1, Ohio.

Y7 **FITTINGS AND FLANGES** — Data card shows wall thickness and essential dimensions for all types of welding fittings for every nominal pipe size from ⅛ through 30-in. Essential dimensions and bolting data are also given for all types of flanges, in all weights, for nominal pipe sizes from ½ through 24-in. Taylor Forge & Pipe Works, P O Box 485, Chicago 90, Ill.

Y8 **STUD WELDING** — Detailed specifications and performance characteristics of two Nelweldor power units specifically designed to improve and extend the advantages of stud welding. 4-page folder. Nelson Stud Welding Div, Morton Gregory Corp, Lorain, Ohio.

Y9 **WELDING ELECTRODES** — 16-page booklet No. E 135-7 contains information on mild steel arc welding electrodes. Two pages of data on each of seven Murex electrodes meeting various AWS and ASTM requirements for mild steel arc welding electrodes. Illustrated with performance charts and application photos. Metal & Thermit Corporation, 100 E 42nd St, New York, 17, N. Y.

Y10 **WELDING ACCESSORIES** — 32-page booklet No. E-138-10-550 covers the company's line of welding accessories such as holders, helmets, cable, ground clamps, goggles, cleaning tools and protective clothing, giving descriptive data and specifications, also data on replacement parts. Metal & Thermit Corp, 100 East 42nd St, New York 17, N. Y.

Y11 **WELDING FITTINGS** — Catalog No. 48 contains charts, tables, graphs, condensations and discussion of pipe specifications, welding data, design formulas, metallurgical information and other engineering data. Midwest Piping & Supply Co, Inc, Second & Miller St, St. Louis 4, Mo.

Y12 **RESISTANCE WELDING**—4-page brochure No. RW-2 offers information regarding Ampico's line of resistance-welding tips, wheels, water-cooled holders, welding dies, welder shafts, bushings and quick-disconnect water-shutoff couplings. Ampco Metal Inc, 1745 S 38th St, Milwaukee 15, Wis.

OTHER EQUIPMENT

Z1 **STEEL FLOORING** — 16-page catalog No. 1103 discusses different types of Tri-Lok open steel flooring and safety treads. Contains specification data, safe load tables, installation methods and other pertinent information. Dravo Corp, Machinery Div, National Dept, 5th & Liberty Aves, Pittsburgh 22, Pa.

Z2 **ACOUSTICAL TILE** — 8-page publication, entitled "Fiberglas Textured and Perforated Acoustical Tile," includes data on textured and perforated acoustical products, application methods by adhesive, mechanical suspension or clipping on wood furring strips, and specifications. Owens-Corning Fiberglas Corp, Toledo 1, Ohio.

Z3 **NEW AND REBUILT EQUIPMENT**—48-page stock list No. 102 gives brief specifications for new and rebuilt ac and dc motors, generators, generator sets, frequency changers, transformers, welders, speed reducers, centrifugal pumps, and miscellaneous equipment currently in stock. Glow Electric Co, 933 Harriet St, Cincinnati 3, Ohio.

(Continued on page 206)

"PBH" Weighted Gauge Cocks

Improved — to give you a weighted Gauge Cock that is leakless — springless — quick opening and self closing! Huyette Gauge Cocks are designed to give you these features—these advantages.

A gentle pull is all that's needed to open this sturdy, long-wearing gauge cock — and an adjustable weight automatically closes it when you let go. It's as easy to operate as that!

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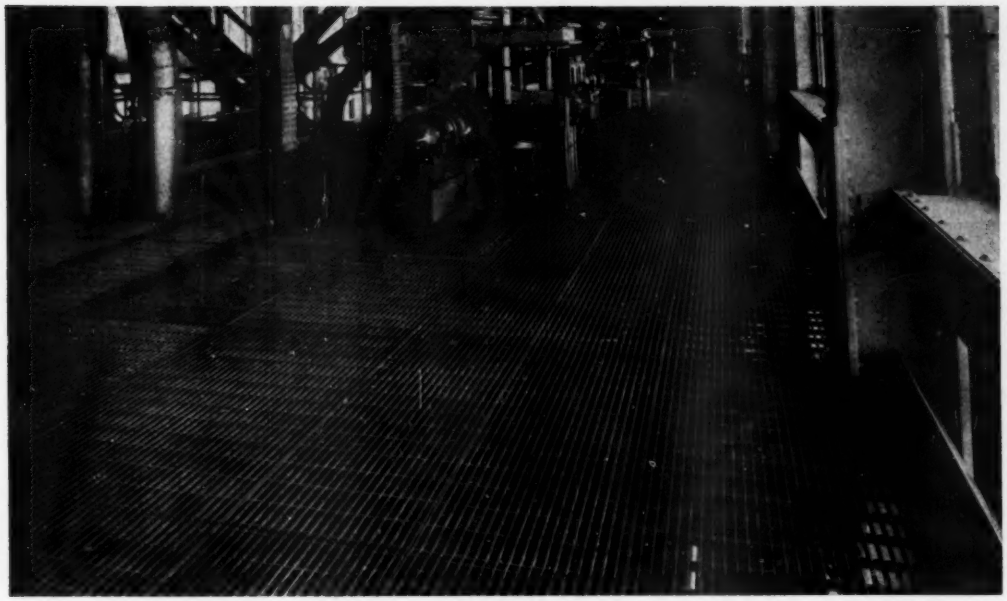

90% open area

for Light and Ventilation in Hendrick Open Steel Flooring

Made in integral panels, under hundreds of tons of hydraulic pressure, Hendrick Mitco Open Steel Flooring will support heavy loading without any lateral deflection of bars.

It has no bolts, rivets or angle irons to loosen, or to collect dirt and refuse. There are no welds, with residual stresses that may lead to warping.

The rectangular, square-edge bars provide a safe, non-slipping, level walking surface. The flooring is furnished to meet loading requirements, with a range from 3/4" x 1/8" bearing bars and 5/8" x 1/8" cross bars to 2 1/4" x 3/16" bearing bars and 1 1/4" x 1/8" cross bars.

Hendrick Shur-Site Treads

for stairs, ladders and fire escapes, offer all the advantages of Mitco construction.

A valuable safety feature is a heavy, flanged nosing bar that gives sharp visibility to the edge of each tread. It also provides added strength where the load is greatest.

Hendrick Mitco Armorgrids

are unequaled for floors, loading platforms, ramps and driveways that have to withstand heavy traffic. Hendrick Armorgrids do not depend on the fill for development of full shock-resisting strength, and they stand up indefinitely under the hardest service.

For further details regarding Hendrick Open Steel Flooring, Shur-Site Treads and Armorgrids, write for a copy of Hendrick Mitco Products Catalogue.

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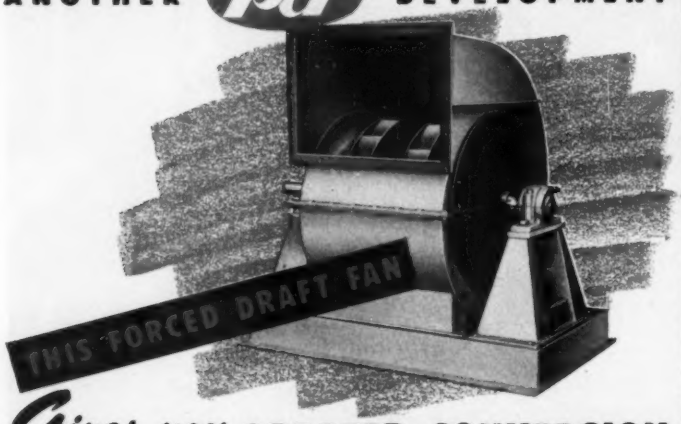
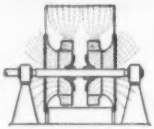
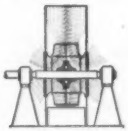
ANOTHER pd DEVELOPMENT



Gives you GREATER CONVERSION OF VELOCITY PRESSURE TO STATIC PRESSURE



How P-D split wheel assists diffusion—aids distribution throughout the fan.

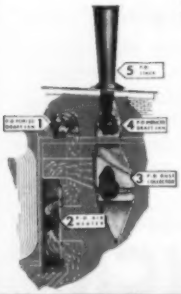


Conventional double wheel with common disc produces concentration, results in poor diffusion.

Performance ratings of the Prat-Daniel F-D Fan are established according to the Standard Test Codes adopted by N.A.F.M. and the A.S.H.V.E.

Design characteristics provide unusually high conversion of Velocity Pressure to Static Pressure. This is accomplished by streamlined inlet cones that are larger in proportion to the wheel than are usually found in forced draft fans. The unusual depth of the cones provide a wider housing than would customarily be used, increasing the space available for diffusion. Precisely fashioned backward curved blades provide a nearly perfect aerodynamic flow across both leading and trailing edges. Double wheel fans are spaced apart to permit four way diffusion of air, further contributing to this conversion. Peak efficiency and horsepower curves fall well within normal fan selection range, offering the optimum in maximum efficiency and non-overloading characteristics.

These are all carefully researched features that have made the Prat-Daniel F-D Fan a highly efficient apparatus. Check these features before you decide on your next fan. Write for catalog No. 300 today.



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The Thermix Corp., project engineers for the Prat-Daniel Corp., offer all components required for the handling of air and gas: (1) P-D Forced Draft Fans; (2) P-D Air Pre-Heaters; (3) P-D Tubular Dust Collectors; (4) P-D Induced Draft Fans; and (5) P-D Fan Stacks. This unit responsibility, by a well known firm, relieves the engineer of the necessity of integrating equipment from various sources into the over-all project.

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Z4 **REFERENCE BOOKS** — Catalog furnishes over 2000 listings of Lefax pocket-size technical books. Subjects listed include: hydrulics, machine design, piping data, metallurgy, transformers, relays, meters, ac-dc electricity ac motors and generators, air conditioning, physics, and many others. Lefax, Philadelphia 7, Pa.

Z5 **ISOMETRICS** — 8-page booklet outlines advantages of isometric drawings (including exploded drawings) in the manufacturing industries. Book offers isometric engineering service, including consultation, visuals and manuals. Isometric Co, 1819 Broadway, New York 23, N. Y.

Z6 **GLASS INSULATION** — 36-page booklet No. 37-B contains the complete story on normal temperature (50 - 150 F) applications of PC Foamglas, the long-life industrial insulation. Pittsburgh Corning Corp, 307 Fourth Ave, Pittsburgh 22, Pa.

Z7 **SERVICE AND REPAIR SHOPS** —4-page folder lists 83 authorized service shops of the company located in 31 states. Address, telephone number, and name of the man in charge of each service shop are included. Reliance Electric & Engrg Co, 1088 Ivanhoe Rd, Cleveland 10, Ohio.

Z8 **HAND TORCHES** — 36-page catalog No. ADC-702 presents Airco's complete line of welding and cutting torches, outfits, tips, and accessories. Extensive charts showing correlation of tip, mixer, extension and torch contain complete data for each component part. Air Reduction Sales Co, 60 E 42nd St, New York 17, N. Y.

Z9 **INDUSTRIAL FURNACES** — 11-page bulletin No. HGF-101-12-46 gives informative data on direct-fired hot gas generating industrial furnaces in capacities from 600,000 to 100,000,000 Btu's and larger for process drying and product heating. Air Devices, Inc, 17 E 42nd Street, New York 11, N. Y.

Z10 **COMPRESSED-AIR POWER**—18-page booklet contains extensive basic reference data on compressed air and gas power. Booklet is divided into 3 sections: Uses of Compressed Air; Theory of Compressed Air; Types of Compressors. It is written in non technical language. Secretary, Committee on Engrg Education, Compressed Air & Gas Institute, 1410 Terminal Tower, Cleveland 13, Ohio.

Z11 **SURFACE CONDENSERS** — Bulletin No. W-200-B1 discusses Worthington surface condenser design, methods of installing condenser tubes and construction on various types and sizes. Auxiliary equipment is also covered. Photographs, and drawings are given. Worthington Pump & Machy Corp, Harrison, N. J.

Z12 **DIESELS AND ACCESSORIES**—8-page booklet No. 12829 cites instances where diesel engines and electric sets used as standby power have come to the rescue of medical institutions isolated by storms and power failures. Caterpillar Tractor Co, Peoria 8, Ill.

Z13 **CORROSION PROPERTIES** — 24-page technical bulletin T-6 describes the resistance of nickel and its alloys to corrosion by caustic alkalies. Methods of testing as well as results are given. International Nickel Co, Inc, 67 Wall Street, New York 5, N. Y.

Z14 **WEIGHING SCALE** — Illustrates and describes the new Howe 77 Weightograph, an automatic weighing accessory which can be attached to any scale convertible to beam operation, thus making it automatic. 4-page folder No. 668. The Howe Scale Co, Rutland, Vt.

Z15 **CONTRACTING SERVICE**—Gives a history of Sauer Inc, a firm of mechanical contractors specializing in contracting for plumbing, heating, ventilating, air conditioning, process piping, and boiler plants. 36-page brochure. Sauer, Inc, Pittsburgh 14, Pa.

Z16 **THERMOCOUPLES**—8-page catalog section No. 22 describes and illustrates industrial thermocouples for all pyrometers. Thermo Electric Co, Inc, Fair Lawn, N. J.

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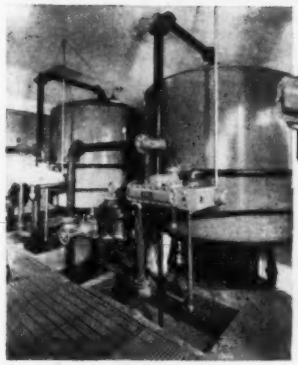
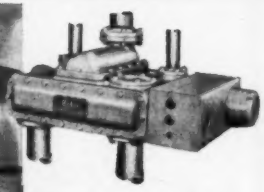
BELCO PROVIDES AUTOMATIC SOFTENING *At Low Cost!*

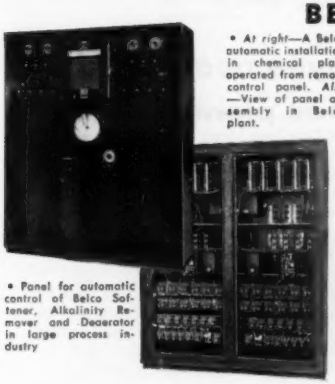




BELCO CAMOMATIC VALVE

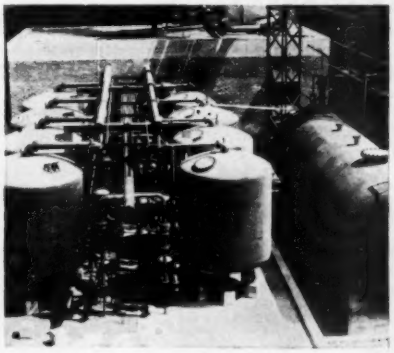
The new Belco Camomatic Valve completely eliminates the rubbing rotor, slam-action, high pressure loss and the stuck plug. No twisting, tortuous passages so pressure loss and corresponding pumping costs are at a minimum. Seats and discs are interchangeable. Simple construction enables any mechanically minded operator to make the replacement in a few minutes without breaking any pipe lines. Its smooth action requires only a small fractional h.p. motor. The Belco Camomatic Valve replaces the seven individual valves which are required for normal operation of a softener. When instruments indicate hardness present, or when a predetermined amount of raw water has been used, the softening cycle is automatically set in operation. The Camomatic Valve is also readily adaptable to pressure filtration and other process control. It can be rubber lined for the hydrogen cycle application where it is necessary to use acid instead of salt. A Belco engineer will be glad to discuss new applications as they may apply to your problems.

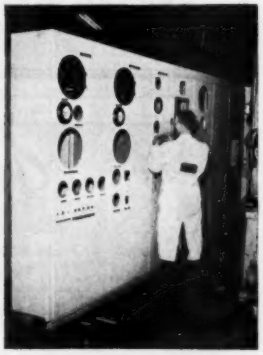
BELCO AUTOMATIC CONTROL PANELS



• *At right*—A Belco automatic installation in chemical plant operated from remote control panel. *Also*—View of panel assembly in Belco plant.

• Panel for automatic control of Belco Softener, Alkalinity Remover and Deaerator in large process industry





Belco Automatic Panel assemblies are designed and constructed in our own plant, under supervision of Belco electronic engineers. With a Belco control panel automatic control of a softening plant with visual indication of the valves programming is possible. Entire operation of back wash, regeneration, rinse and service return is automatically accomplished. Belco control panels are built too, for automatic control of process cycles in all industries. Large reserves of individual components of water softener and other special treating equipment are always on hand to insure most rapid fulfillment of your requirements. Ask a Belco engineer how modernization might effect substantial savings in your present operation. His experience is varied and complete.

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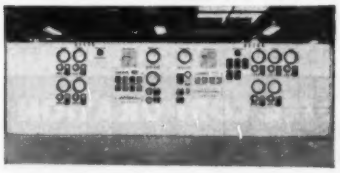
PATERSON 3, NEW JERSEY

• Belco panel and controls used to operate the worlds largest demineralizing and silica removal plant.



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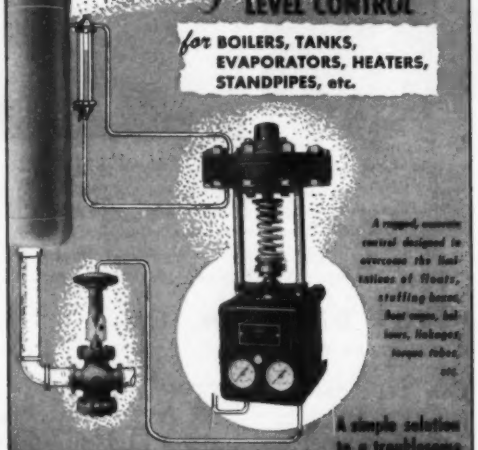
Floatless LEVEL CONTROL

for BOILERS, TANKS, EVAPORATORS, HEATERS, STANDPIPES, etc.



A rugged, accurate control designed to overcome the limitations of floats, stuffing boxes, foot valves, bellows, linkages, torque tubes, etc.

A simple solution to a troublesome problem

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PRESSURE REDUCING VALVES • • PRESSURE CONTROLLERS
PUMP GOVERNORS • • • TEMPERATURE REGULATORS
SELF CLEANING STRAINERS • • LESLIE-TYFON WHISTLES

AEROTEC *Integral*

DUST COLLECTORS

Doors are removed on this Aerotec Model 70, showing dust bin in position.

employee health and save wear on plant equipment

Aerotec Integral Dust Collectors eliminate dust hazards created by grinding, buffing, polishing, and chipping operations. Their high constant suction at the hood safeguards both plant and personnel.

A large diameter cyclone type for collecting larger dusts, and a series of highly efficient, small diameter tubes for finer particles, are combined in Aerotec Integral Collectors. Discharge is continuous, therefore the original high suction at the hood remains constant. There is no pressure build-up, as in impingement type collectors. Aerotec Integral Collectors provide long, maintenance-free service, requiring only periodic removal of dust from the storage bin.

Sizes available are from 300 to 2100 CFM with a suction at the inlet of up to 5 W. G. The hundreds of installations in metal fabricating plants are daily proving the high collection efficiency of Aerotec Integral Dust Collectors.

If you have a dust collection problem, call or write our project engineers today. Applying their wide experience, they can suggest an effective solution.

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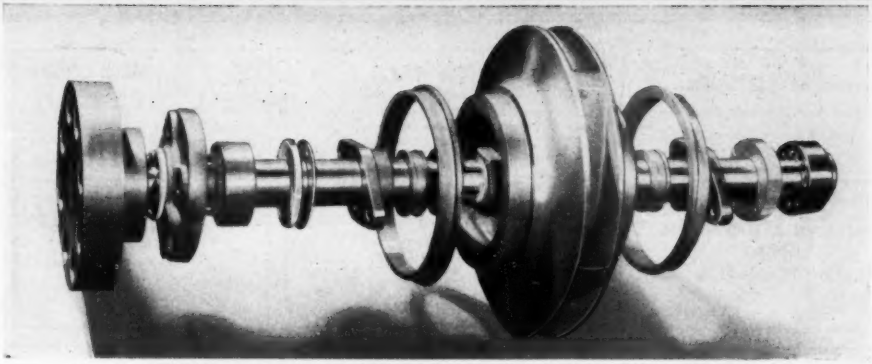
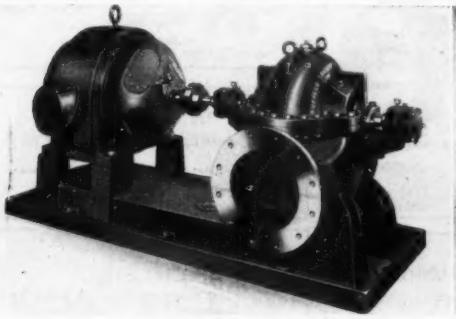
THE AEROTEC CORPORATION
GREENWICH, CONN.

"INSIDE STORY" on "Buffalo" PUMPING EFFICIENCY!

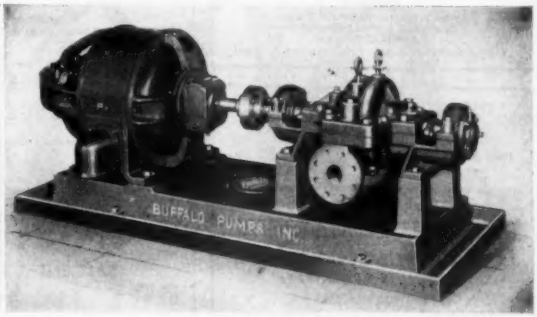


ROTOR AND SHAFT ASSEMBLY FROM A TYPE "SL" PUMP

Here is strength, precision construction and efficient design in the "business department" of the pump! Note the oversize shaft. It's of high grade steel, machined all over, bronze covered, or solid monel metal or other alloy. Impeller is mounted on an enlargement of diameter at center of shaft and secured by feather key and lock nuts. All rotating elements are assembled on shaft and put in perfect balance before being placed in pump. And, just as important, the impeller is hydraulically balanced—always receiving water from opposite sides in equal volume and pressure. Efficiency is increased, too, by the simply formed water passages in the pump casing of all "SL" Pumps. It's just another reason why there is no better buy in clear water pumping than a "Buffalo" Pump—for long life, for efficiency, for all-around economy.



"Buffalo" Double Suction Ball Bearing Pump, Type "CS", which is supplied with the shaft assembly shown above. For capacities from 10 to 10,000 gpm, clear water. WRITE FOR BULLETIN 955-N.



"Buffalo" Type "RR" Single Suction Pump, also used for clear water service, for high pressures, any temperature . . . in applications such as boiler feed. In 2- and 4-stage models. WRITE FOR BULLETIN 980-C.

"Buffalo" PUMPS

BUFFALO PUMPS INC.

488 BROADWAY BUFFALO, NEW YORK

Canada Pumps Ltd., Kitchener, Ont. Branch Offices in All Principal Cities

A BETTER CENTRIFUGAL PUMP FOR EVERY LIQUID

PROFESSIONAL SERVICES

CONSULTING
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DESIGN
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Kansas City, Mo. P. O. Box 7088
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Pumping Plants—Electric Systems
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Steam, Diesel, Electric Power plants. Industrial plants. Examinations and reports. Plans, specifications, supervision.
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Consulting Engineers
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Steam - Diesel - Hydro
Design - Construction - Test - Valuation
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Engineers and Consultants
Industrial and Utilities, Power Plant Design and Construction. Rehabilitation and Maintenance.
Steam — Diesel — Hydro — Sewage
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Reg. Mechanical & Electrical Engineer
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Established 1909
Consulting Engineers
Power Plants Paper Mills
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Design-Construction-Reports-Appraisals
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CONSULTING ENGINEERS
POWER PLANTS
TRANSMISSION DISTRIBUTION
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79 East Adams Street Chicago 3, Illinois

SARGENT & LUNDY
Engineers
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Let them save your time by bringing their broad experience in their specialty to bear on your problems.

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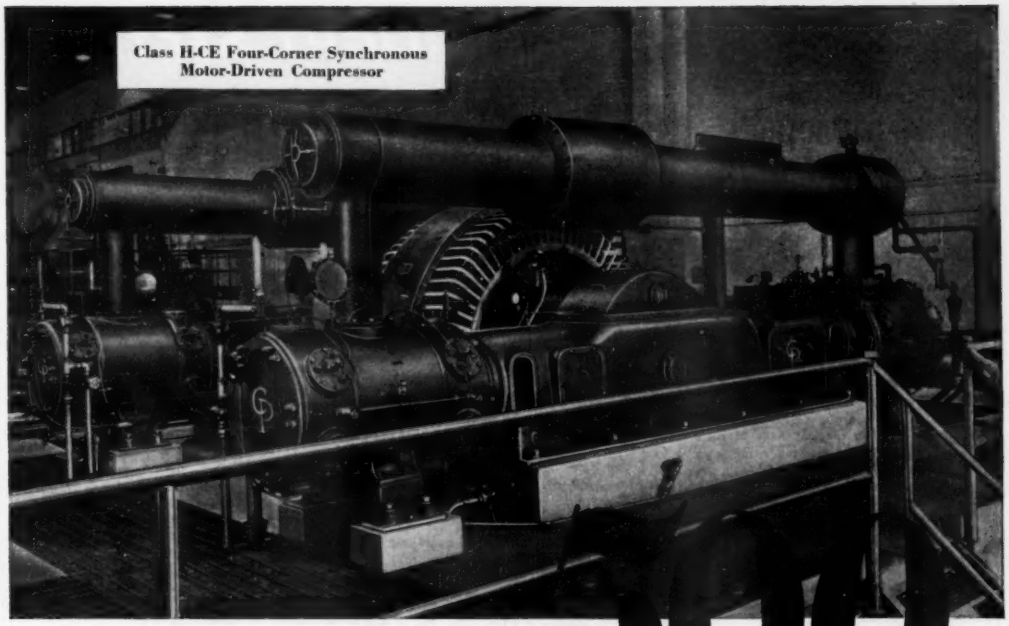
"By reason of special training, wide experience and tested ability, coupled with professional integrity, the consulting engineer brings to his client detached engineer and economic advice that rises above local limitations and encompasses the availability of all modern developments in the fields where he practices as an expert. His services, which do not replace but supplement and broaden those of regularly employed personnel, are justified on the ground that he saves his client more than he costs him."



Class H-CE Four-Corner Synchronous Motor-Driven Compressor

Duplex synchronous motor-driven Compressors in sizes from 500 to 12,000 c.f.m.

piston displacement at 100 lbs. pressure

These compressors have anti-friction roller bearings throughout: spherical roller main and crankpin bearings, and heavy-duty needle bearings at the crosshead pins.

The use of roller bearings in the running gear eliminates all danger of misadjustment in maintenance. Roller crankpin bearings permit the use of solid-end connecting rods, the strongest and safest type.

a complete line

CP Compressors range from 7½ to 2000 h.p. in electric and steam-driven types, pressures to 5000 lbs.; vertical and horizontal models; CP Vacuum Pumps from 7½ to 1000 h.p.

Write for Bulletin 726

CHICAGO PNEUMATIC TOOL COMPANY

General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

AN UNPARALLELED OPPORTUNITY for COMBUSTION EQUIPMENT SALES ENGINEERS

National Spreader Stoker Sales Organization requires services of Sales and Combustion Engineers of proven sales ability to contact concerns using boilers to make steam. This is a real opportunity for Combustion Engineers to go into business for themselves and make money. Prospects are everywhere and waiting for our salesmen.

FYR-FEEDERS burn cheaper sizes of coal, wood chips, sawdust, hogged wood, etc., and PAY FOR THEMSELVES quickly. Average annual SAVINGS run from $24 to $90 per rated boiler horsepower. Wet coal is no problem.

FYR-FEEDERS replace underfeed coal stokers, spreader stokers, pulverized coal burners, oil and gas burners. Coal savings run from 25% to 78%.

FYR-FEEDER Spray-Spred Stoker equipment is sold for Cash or on FYR-FEEDER Coal Savings Purchase Plan . . . no capital investment required . . . all payments *out of actual savings as made.*

Salesmen who sell only 24 average size FYR-FEEDERS annually will earn $15,000 per year in commissions. On 48 sales per year, commissions will run more than $40,000. No investment by salesmen required, but must have car.

Additional commissions can be made by selling our FLO-MATIC (bin to boiler) Wood or Coal Conveyors which are a necessity in every boiler room to conserve manpower.

If qualified we will train you in Chicago. For interview, phone SUperior 7-3264, or write —

American Coal Burner Company

18-R East Erie Street • Chicago, Ill.

TO INDUSTRIES BURNING COAL

and/or Wood Waste Fuel

We will **CONTRACT** *to substantially* **CUT** *your* **COAL COSTS.** This we have done in **THOUSANDS** of installations.

AVERAGE ANNUAL SAVINGS

run from **$24** to **$90** PER

RATED BOILER HORSEPOWER

Write for engineer to make savings estimate at no cost to you.

FYR-FEEDER ENGINEERS

Division American Coal Burner Company

18-R EAST ERIE STREET, CHICAGO, ILL.

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

—RATES—

UNDISPLAYED

$1.20 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

Box Numbers—count as one additional line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

DISPLAYED

Individual Spaces with border rules for prominent display of advertisements.

The advertising rate is $13.00 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured ⅞" vertically on one column, 3 columns—30 inches—to a page.

[New Ads Received by June 8th at the New York office, 330 W. 42nd St., New York 18, N. Y., will appear in the July issue subject to limitations of space available.

ENGINEERS

Electrical Mechanical Structural

Openings in Ohio and New York offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical **Power, lighting layouts and electrical controls.**

Mechanical **Plant layout, process piping, conveyors, heating and ventilation, boiler houses, process equipment layout, refrigeration, plumbing, tanks and vessels, packaging equipment, special machinery and equipment.**

Structural **Structural steel and reinforced concrete.**

Please submit complete resume stating experience, education, salary required and availability date.

THE H. K. FERGUSON COMPANY

Engineers and Builders

The Ferguson Building

1783 E. 11th St., Cleveland 14, Ohio **19 Rector St., New York 6, N. Y.**

REPLIES (Box No.):
Address to office nearest you
NEW YORK: 330 W. 42 St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITION VACANT

STEAM GENERATOR Sales Manager. Chicago, no traveling. Adequate salary and incentive bonus. Write, stating previous experience, for interview. Our men know of this ad. Temperature Equipment Corp., 816 N. Kostner Ave., Chicago 51, Illinois.

EMPLOYMENT SERVICE

SALARIED PERSONNEL $3,000-$25,000. This confidential service established 1927, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. G, 241 Orange St., New Haven, Conn.

WANTED

ANYTHING within reason that is wanted in the field served by Power can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

ADD TO YOUR PROFITS

MANUFACTURERS REPRESENTATIVES AND DEALERS WITH POWER PLANT BACKGROUND

Sell **BORGANA** Remarkable organic treatment for boilers and water systems for prevention of scale and corrosion.

- Unconditionally guaranteed
- Easy to sell
- No daily testing—non technical
- Complete insurance protection
- Nationally advertising
- 20 years proven field use

A FEW SELECT TERRITORIES NOW OPEN

CHEMICAL DIV. PORTLAND SHINGLE CO.
9038 N. Denver Ave. Portland 17, Oregon

ATTENTION SALES MANAGERS

A New England Industrial Sales Organization—with Salesmen calling on the Industrial—Marine and Power Industries desires additional lines—Are You Represented in New England? If Not, write

RA-9959, POWER
330 W. 42 St., New York 18, N. Y.

Air Compressors Wanted

Horizontal Water Cooled—Any size
also 2 Stage portable unit

L. W. BAUER
North Bergen, N. J.

WANTED

1 Electric Motor, 400 H.P., 450 RPM, 3 phase, 60 cycle, 440 volts, slip ring.

IVAN M. MARTIN, INC.
BLUE BALL, LANCASTER COUNTY, PA.
TERRE HILL 5-3455

WANTED TO BUY — *For Cash*
YOUR SURPLUS

ELECTRIC MOTORS • MOTORS STARTERS
OIL & AIR CIRCUIT BREAKERS • CABLE-WIRING MATERIALS • PANEL BOARD FITTINGS • SPEED REDUCERS
COPPER WIRE
INDUSTRIAL ELECTRIC & SUPPLY CO., INC.
37-1681—Memphis, Tenn.—Box 1398

BUYERS OF SURPLUS COPPER INSULATED WIRES AND CABLES

No lengths too long or too short
TELEPHONE: EASTGATE 7-4778

PIERCE CABLE CO.
2668 CLYBOURN AVE., CHICAGO 14, ILLINOIS

POWER PLANT MACHINERY

STEAM TURBINE GENERATOR UNITS

3 Phase 60 Cycle

25,000 KVA General Electric condensing, 200 lbs. steam pressure, 530° FTT, 13,200 volts, with surface condenser.

12,500 KVA Allis-Chalmers condensing, 225 lbs. steam pressure, 550° FTT, 13,200 volts, with surface condenser.

6,250 KVA Allis-Chalmers condensing, 200 lbs. steam pressure, 500° FTT, 2300/4,000 volts, with surface condenser.

5,000 KVA General Electric non-condensing extraction, 600 lbs. steam pressure, 750° FTT, 125/150 lbs. extraction, 0-50 lbs. exhaust, 13,800/4000 volts.

5,000 KVA Westinghouse condensing double extraction, 400 lbs. steam pressure, 600° FTT, 125 lbs. and 20 lbs. extraction, 480 volts, with surface condenser.

3,750 KVA General Electric condensing, 150-250 lbs. steam pressure, 500° FTT, 2300/600 volts, with surface or jet condenser.

2,500 KVA General Electric condensing extraction, 200 lbs. steam pressure, 550° FTT, 20 lbs. extraction, 480 volts, with surface condenser.

1,875 KVA General Electric non-condensing, 185 lbs. steam pressure, 500° FTT, 0-10 lbs. exhaust, 480 volts.

1,875 KVA General Electric condensing, 150-200 lbs. steam pressure, 500° FTT, 2300 volts, with surface or jet condenser.

1,250 KVA General Electric condensing, 200-400 lbs. steam pressure, 650° FTT, 2300/4150 volts, with surface condenser.

1,250 KVA Westinghouse condensing extraction, 150-250 lbs. steam pressure, 600° FTT, 5-25 lbs. extraction, 480 volts, with surface condenser.

625 KVA Westinghouse non-condensing, 150-200 lbs. steam pressure, 600° FTT, 5-25 lbs. exhaust, 480 volts.

438 KVA Westinghouse non-condensing, 150-200 lbs. steam pressure 500° FTT, 5-25 lbs. exhaust, 2300 volts.

STEAM ENGINE GENERATOR UNITS

3 Phase 60 Cycle

750 KVA Allis-Chalmers-Ames vertical uniflow, 150 lbs. steam pressure, 5 lbs. exhaust, 2400/4160 volts.

625 KVA General Electric-Skinner horizontal uniflow, 150 lbs. steam pressure, 5 lbs. exhaust, 240 volts.

500 KVA Allis-Chalmers-Chuse horizontal Corliss, 150 lbs. steam pressure, 10 lbs. exhaust, 480 volts.

375 KVA General Electric-Skinner horizontal uniflow, 150 lbs. steam pressure, 5 lbs. exhaust, 480 volts.

250 KVA General Electric-Ames vertical uniflow, 150 lbs. steam pressure, 5 lbs. exhaust, 480 volts.

SPECIAL

NEW 2859 KVA HIGH FREQUENCY GENERATORS

120/240 Cycle

3—2000 KW 70% P.F. 2859 KVA New General Electric A.C. generators, 3 phase, 240 cycle, 4150 volts, type ATB-6, 4800 RPM. Can be operated at lower frequencies with proportionate reduced speeds.

DIESEL ENGINE GENERATOR UNITS

3 Phase 60 Cycle

1,675 KVA Fairbanks-Morse, 2400/600/480 volts, 300 RPM.

1,000 KVA DeLavergne, 2400 volts, 200 RPM.

900 KVA Fairbanks-Morse, 2400 volts, 257 RPM.

782 KVA Worthington, 480 volts, 327 RPM.

546 KVA Worthington, 480 volts, 327 RPM.

450 KVA (2) American Locomotive, 480 volts, 514 RPM.

312 KVA Superior, 480 volts, 360 RPM.

300 KVA Fairbanks-Morse, 480 volts, 257 RPM.

SPECIAL

1675 KVA DIESEL ENGINE GENERATOR UNIT

1675 KVA Fairbanks-Morse generator 3 phase 60 cycle 2400 volts, 300 RPM, direct connected to

1750 HP Fairbanks-Morse diesel engine, 2 cycle, 10 cylinders, Model 33E16, 300 RPM.

Complete with direct connected exciter, switchgear, starting equipment, heat exchanger, air scavenger, pumps, oil reclaimer, Maxim silencer, and inter-connecting piping and fittings as in operation.

This unit is a heavy duty base load type machine and is in excellent condition. It was installed new in 1942 and operated intermittently. The engine can be adapted for dual fuel operation and the generator can be re-connected for 480 or 600 volts.

STEAM BOILERS

1,000 HP Springfield, 120,000 lbs. steam per hour, 300 lbs. steam pressure, 600° FTT, stoker fired.

825 HP Combustion Engineering, 275 lbs. steam pressure, 525° FTT, pulverized fuel.

800 HP Springfield, 50,000 lbs. steam per hour, 250 lbs. steam pressure, 500° FTT, stoker fired.

720 HP (2) Combustion Engineering, 60,000 lbs. steam per hour, 450 lbs. steam pressure, 600° FTT, stoker fired.

529 HP Babcock & Wilcox, 25,000 lbs. steam per hour, 160 lbs. steam pressure, 350° FTT, wood fired.

500 HP Vogt, 200 lbs. steam pressure, 500° FTT, stoker fired.

400 HP (2) Titusville, 25,000 lbs. per hour, 240 lbs. steam pressure, 500° FTT, stoker fired.

350 HP (2) Wickes 300-350 lbs. steam pressure, 600° FTT, oil and gas fired.

300 HP (2) Keeler 10,000 lbs. steam per hour, 250 lbs. steam pressure, 500° FTT, stoker fired.

225 HP (2) Babcock & Wilcox, 12,000 lbs. steam per hour, 200 lbs. steam pressure, 450° FTT, hand fired.

225 HP (2) Erie City HRT, 150 lbs. steam pressure, oil fired.

150 HP (3) Bros HRT, 125 lbs. steam pressure, stoker fired.

FREQUENCY CHANGER

3,750 KVA General Electric generator, 3 phase 60 cycle 2300/4000 volts, direct connected to 4200 HP General Electric synchronous motor, 3 phase 25 cycle 440/22,000 volts, 300 RPM.

Write, Wire or Phone for Further Details and Prices

INTERNATIONAL POWER MACHINERY CO.

UNION COMMERCE BLDG. Telephone: MAin 1-9514 · CLEVELAND 14, OHIO

ONE DEPENDABLE SOURCE FOR

QUALITY

The O'Brien Machinery Co. employs modern techniques, experienced craftsmen and the latest shop equipment to provide you with Top Quality Rebuilt machinery.

PORTION OF O'BRIEN'S ELECTRICAL SHOP

ELECTRIC MOTORS

3 PHASE — 60 CYCLE

Q.	HP	Make	Type	Volts	Speed
1	1200	Cr. Wh.	Sl. Rg.	2300	257
2	1000	G.E. new	K	3/60/2300	1800
1	700	G.E.	ATI syn.	480	1200
1	600	West.	CS	2300	900
2	600	West.	Syn.	440	257
3	500	West.	CS	2300/6600	514
2	500	EM.	Syn.	2300	1200
1	500	Al. Ch.	SC	2300	1800
1	400	G.E.	Syn.	360/2300	450
1	400	G.E.	MT412	2300	450
1	400	West.	CW	440	514
1	350	G.E.	MT18	3/60/2300	400
1	350	G.E.	IM	220	600
1	315	G.E.	Syn.	2200	720
1	250	West.	CS	2300	1200
2	200	EM.	Syn.	2300	1200
1	200	West.	MW	440	600
1	150	Ideal	Syn.	220	1200
1	125	Cent.	SC	440	1800
2	100	West.	CS	220	1800
1	100	Cent.	SC	220	1200
1	100	A.C.	Sl. Rg.	440	720
2	100	G.E.	Syn.	440	300
1	75	Wagner	RM	440	900
1	75	West.	CW	440	1200
1	60	Ideal	SC	220	1200
1	60	West.	C.W.	440	720
3	50	A.C.	SC	220	900
1	50	West.	CS	400	3600
1	50	West.	C.W.	220	900
1	50	G.E.	I.M.	440	600
2	50	Cent.	SC	220	1200
1	40	G.E.	MT-536	440	900
1	30	G.E.	MT-532	440	900
2	25	G.E.	MT-332	440	900

Direct Current — 230 Volt

2	1½	West.	B	230	1750
3	1½	G.E.	BD	230	1750
1	2	G.E.	RC24B	230	1700
2	2	West.	CD	230	1150
1	2	A.L.	AW5C	230	900
1	3	Diehl	S	230	850
1	3	West.	SK	230	1150
2	5	West.	S	230	550 (Crane Motor)
1	5	G.E.	RC	230	1100
1	7½	G.E.	RC	230	850
1	7½	West.	SK43	230	1150
1	7½	A.C.	E75	230	1150
1	7½	G.E.	BD	230	3450
1	10	G.E.	CD	230	1250
1	15	Cr. Wh.	CCM	230	850
1	15	G.E.	RC	230	1150
1	20	West.	SK	230	1100
1	20	G.E.	RC	230	800
1	25	West.	SK	230	900
1	25	El. Dyn.	S	230	800
1	25	G.E.	RC	230	3450
1	75	West.	SK	230	800
1	250	Cr. Wh.	DR	230	1900

Direct Current — 230 Volts

Variable Speed

1	5	El. Dyn.	SH	230	550/1650
1	5	Diehl	SH	230	670/1200
1	5	G.E.	RLC	230	400/1600
1	7½	G.E.	R.E.	230	450/1350
1	10	G.E.	RF-10	220	400/1200
1	10	G.E.	RLC	230	500/1200
1	10	G.E.	RF	230	525/1525
1	10	Ele. Dyn.	S	230	425/1275
1	15	Burke	AM7	230	300/1200
12	15	G.E.	RF	230	300/1500
1	15/20	Ele. Dyn.	15-S	230	300/900
1	20	Ele. Dyn.	S	230	550/1650
1	25	Cr. Wh.	CMC	230	850/1725
1	25	C & C	L	230	250/1000
1	40	West.	SK	230	500/1500
1	50	Cr. Wh.	CMC	230	300/1200
1	50	G.E.	RF-16	230	300/1200
1	100	G.E.	RF-17	230	450/900
1	150	West.	SK-201	230	450/900

Direct Current — 115 Volts

1	1	West.	SK	115	1750
1	1½	G.E.	CVC	115	550
1	3	G.E.	CD-45	115	1150
1	3	G.E.	RC	115	1700
12	10	G.E.	CDM NEW	115	1750
1	10	Cr. Wh.	CM	115	825
1	12½	Ideal	D	125	700
1	40	Ideal	D	125	1760
1	75	Cr. Wh.	CMC	115	410
1	85	G.E.	RC	115	1100

MOTOR GENERATORS

1—1000 KW G.E. MPC ATI 550 rpm, 3 phase, 60 cycle, 2300 volt

1—600 KW G.E. MPC-ATI, 250 volt, 3/60/2300/720 rpm

500 KW Crocker Wheeler Type CCD, 230 volt D.C. 720 rpm, Generator on Baseplate with 750 KVA Crocker Wheeler 3/60/2300 syn. motor, complete with Syn. Motor Starting Panel, Generator panel.

1—400 KW G.E. 250 Volt 3/60/440/Syn./1200 rpm

1—300 KW Elliott 250 volt 3/60/2300/Syn./1200 rpm

1—150 KW West. SK 184 125/250 Volt, 3/60/220

1—150 KW G.E. 250 V. D.C. 3/60/2300/1200 rpm.

1—100 KW Al. Ch., 250 V. D.C. 3/60/440/1200 rpm

1—100 KW G.E. 125 V—3/60/220/1200 rpm Syn.

1— 80 KW G.E. 240 V—3/60/440/1800 rpm

1— 75 KW Burke 250 Volt, 3/60/220 Syn.

1— 50 KW G.E. 250 V—3/60/240/1200 rpm

1— 50 KW G.E. 125 V—3/60/220/1200 rpm

1— 40 KW Ideal 125 V—3/60/220/1200 rpm

1— 40 KW West. 240 V—3/60/220-440/1200 rpm Syn.

1—7½ KW G.E. 125 V—3/60/220-240 V

DIESEL ENGINES

1— 25 HP Fairbanks Morse Diesel, 325 rpm horizontal

2— 60 HP Chrysler Diesel Ind-3, 1500 rpm

1— 94 HP Cummins Power Unit—1600 rpm

1—150 HP Cooper Bessemer, 900 rpm

DIESEL GENERATORS

1—2500 KVA General Motors, complete plant, 3/60/2300 with 2300 to 230/460 transformers, cooling system, starting equipment, switchboard, can demonstrate on foundations. Immediately available.

1—480 KVA Superior (1941) 3/60/440/360 rpm

1—225 KVA G.M. Twin 6-71, 3/60/440. NEW 1941

100 KVA Cooper Bessemer 8 cy 900 rpm, 3/60/220

56 KVA G.E.-Climax Gas Port, 3/60/220/1200 rpm

1—50 KW G.E. 250 V .D.C. Gen with Cummins Mod HMR—6 cyl, 4 cy, 1200 rpm diesel

40 KVA NEW Chrysler 3/60/220—2 units

30 KW Buda, 3/60/220/1200 rpm

20 KW Le Roi Gasoline—1/60/110-220 volt

PHILADELPHIA'S LARGEST MACHINERY DEALERS AND EXPORTERS

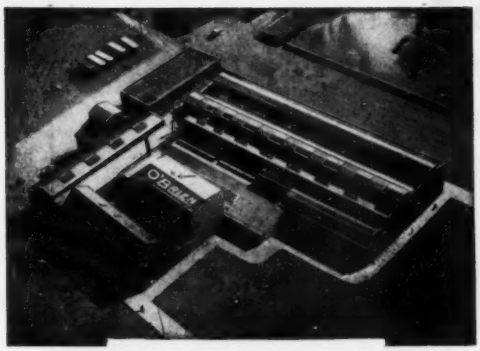
TELEPHONE
GArfield 6-1150

CABLE ADDRESS
OBRIEN-PHILA

THE O'BRIEN

• 1547 N. DELAWARE AVENUE •

ALL YOUR MACHINERY NEEDS



AERIAL VIEW OF THE O'BRIEN MACHINERY PLANT

INTEGRITY

For 37 years The O'Brien Machinery Company has faithfully upheld the highest standards of business practice while serving our country's industry.

TURBO-GENERATORS

1—780 KVA West. 2400 volt, 3/60/3600 rpm, 200 psi. Condensing
1—625 KW West. 3/60/2300/3600 rpm, 125 Lb. psi, 6 Lb. B.P.
1—600 KW G.E. Extraction 360/2300/250 psi., 80 lb. & 16 lb. extraction. Surface Condenser new 1940
1—500 KW G.E.-Moore (1936)—Non-Cond. 3/60/2300/3600 rpm, 180 psi, 35 Lb. B.P.
1—400 KW West. 3/60/480, 150 psi., 10 Lb. B.P.
2—300 KW West. 125/250 volt, 3 wire 125#, 5# Back
3—300 KW West. (1938) Non-Cond. 250 Volt D.C. 150 psi, 10 Lb. B.P.
1—300 KW Elliott (new 1941) 250 Volt D.C., 150 Lb. I.S.P., 20 Lb. B.P.
1—160 KW Ridgeway 4 Valve Steam Engine Generator, 3/60/220
1—100 KW NEW 3/60/220 150/200 psi. 0/30 Lb. B.P.
1— 75 KW G.E. Non-Cond. 125 V. D.C.
1— 75 KW G.E. 125 V. D.C. Non-Cond. 150#
1— 35 KW G.E. 125 volt D.C., 3600 rpm

A.C. GENERATORS

KVA	Make	Phase	Cycles	Volts	Speed
1—750	G.E.	3	60	480	1200
500	West.	3	60	440	900
2—500	West.	3	60	440	257
375	West.	3	60	440	360
300	G.E.	3	60	2200	720
300	G.E.	3	100	550	600
200	Al. Ch.	3	60	220	900
125	E.M. (NEW)	3	60	220	900
100	G.E.	2	60	220	900
100	Ideal	2	60	220	1200
62.5	Burke	3	60	220	1200
32.5	G.E.	3	60	220	1200
15	Ideal	2	60	220	1800
15— 7.5	G.E. (NEW)	1	60	120	1800

TURBO BLOWER SPECIAL

3—Ingersoll Rand Type CVS—20" New 1941-42 12,000 cfm, 3.25#, 3550 rpm—direct connected to 250 HP G.E. 3/60/440/3600 rpm motors. 2 units cast iron—1 fabricated steel.

STEAM ENGINES

1—400 HP Ames Vertical Uniflow 4 cyl. 12 x 12—360 rpm
6—30 HP NEW Troy Vertical Steam Engines 7 x 6, 150 Lb. 500 rpm Throttling Governor

PUMPS

1—20" Lea Courtney, 20,000 gpm, 200 ft. Turbine Drive 175/250 PSI condensing
1—20" Lea Courtney, 10500 gpm, 100 ft. 400 HP, 3/60/970 rpm
1—20" De Laval—Double Suction, 10,500 gpm, 114 ft. 400 HP, 3/60/870 rpm
1—16" Lea Courtney, 17,000 gpm, 200 ft. Turbine Drive—175/250 psi condensing
1—16" Lea Courtney double suction, 8150 gpm, 102 ft. 250 HP 3/60/1200 rpm
2—14" Worthington Double Suction 8000 gpm, 110 feet, 500 HP, 3/60/2300/1200 rpm
1—14" Worthington Double Suction 5000 gpm, 125 feet, 200 HP, 3/60/2300/1200 rpm
1—14" Worthington Double Suction 6500 gpm, 100 feet, 200 HP, 3/60/2300/1200 rpm
1—14" Worthington Double Suction 5000 gpm, 112 ft. 200 HP 3/60/440/900 rpm
1—14" Worthington Double Suction, 6800 gpm, 200 ft. 3/60/440/1150 rpm
2—10" De Laval double suction, 1700 gpm, 95' TNH, 60 HP, 3/60/440/1750 rpm
1—10" Wheeler, 3500 gpm, 80 ft. with 100 HP, 3/60/440/1750 rpm motor
2— 8" De Laval Double suction, 2500 gpm, 200 ft. with 200 HP 3/60/2300/1750 rpm motor
1— 8" De Laval Dble Suction, 1500 gpm, 231 ft. TNH. with 150 HP, 3/60/440/1750 rpm
3— 6" Worthington Dble Suction, 1200 gpm, 40 ft. TNH. with 15 HP, 3/60/440/1750 rpm
1— 4" Lawrence 550 gom, 150' TNH, 40 HP 3/60/1750 rpm
2— 2" Worthington NEW 2UB1 Double Suction with 10 HP, 3/60/220/1750 rpm motor

BOILERS

1—200 HP Keeler Horisontal Long Drum Water Tube 160 Lb. used very little
1—352 HP Keeler Water Tube ASME Mechanical Stoker—200 Lb.
2—360 HP Springfield boilers same as above.
1—390 HP Springfield Sectional 300 PSI, Water tube boilers—superheaters, sidewater wall construction. Combustion Type E stoker, Green fuel economizers, feedwater heaters, coal unloading and conveying equipment. Boiler feed pumps, etc.
1—540 HP Keeler Water Tube 250 Lb. ASME Steel encased Riley Pulverizer and oil burner equipment—with side water walls
1— 25 HP McKee Gas Fired 100# Dowthern Vapor Generator

SWITCHBOARDS—CONTROL PANELS AC/DC

We Will Build to Your Specifications—Any and All Types of Control Panels—Wire or Write Your Specifications.

TRANSFORMERS

Qu.	KVA	Make	Type	Phase	Pri.	Sec.
1	100	Red Line	OISC	1	2300	230/460
2	150	West. NEW	OISC	3	6600	208/120
1	150	West.	OISC	1	2400	240/120

AIR COMPRESSORS

3—12,000 CFM Ingersoll Rand Turbo Comp. 3.25# pressure, 250 HP 3/60/440/3600 rpm md
1—8000 CFM Cooper Bessemer, 150/400 psi direct motor 2700 HP Syn. 3/60/2300—NEW

1690 CFM Sullivan 100" Class WN 2, 12 x 12½ x 16 Two Stage Syn. motor 250 HP 3/60/2300 volt. Exciter, Starting Equipment—Can be Inspected Operating.

1—1050 CFM Ingersoll-Rand ES-1, 17¾x13, 50 psi, 275 RPM, V-belt
1—880 CFM Worthington syn. motor drive 150 HP, 3/60/440/277 rpm Size 17x10½x12 with starting equipment, aftercooler.
1—734 CFM Sullivan Angle Class W13, Single Stage 15x13x8, 60 Lb., 300 RPM, v-belt, 100 HP
2—528 CFM Chicago NSB, 100 Lb., 285 RPM, V-belt, 14x12
2—368 CFM Ingersoll ER-1, 285 RPM, 100 psi., 50 HP direct gear, M.D., 3/60/220
1—360 CFM Schramm Vertical V belted on steel base, 75 HP Motor 3/60/220
3—300 CFM Schramm Vert. Direct conected 50 HP GE 3/60/220-440/1200 rpm on base (1945)
1—277 CFM Chicago PB4 Air Cooled 50 HP V-Belt Motor Drive
1—254 CFM Chicago Pneumatic NSB—125# Belt-Drive 40 HP.
1—245 CFM IR-10x10 ER-1, 125 Lb.
1—215 CFM Penna. 9A—10x8, 50 Lb.
2—173 CFM Ingersoll ER-1, 9x8, 300 RPM, 100 Lb., V-belt

. . . "EVERYTHING FROM A PULLEY TO A POWERHOUSE" . . .

MACHINERY CO.

• PHILADELPHIA 25, PENNSYLVANIA •

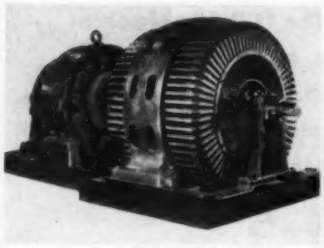
IT ISN'T RE-NU-BILT UNLESS

It Comes from

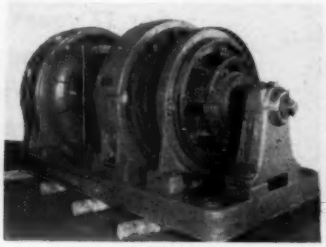
BELYEA

"SUCCESSFUL OPERATION GUARANTEED"

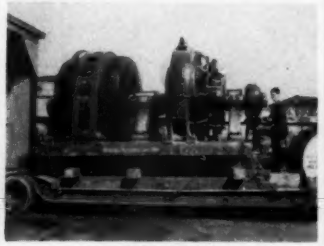
Three Recent Stock Arrivals



500 KW-MG



750 KW-MG



2000 KW-MG

MOTOR GENERATOR SETS

3 ph. 60 cycle

Qu.	KW	Make	Speed	D.C. Volts	A.C. Volts
2	2000*	G.E.	500		6600/11000
1	1800	G.E.	600	125/250	4000
1	1500	Whse.	600	600	2300/4600
1	1500	G.E.	360	275	2200/4400
1	1400	Whse.	360	700	2300
1	1000	Whse.	900	600	2300/4150
1	1000	G.E.	900	600	2300/4150
1	800	Whse.(3U)	1200	600	2300
1	750	Whse.	900	250	2300
1	500	G.E.	900	600	4150
1	500	G.E.	720	125	2300/4000
1	500	Whse.	900	250	440
1	400	G.E.	720	250	440/2300
1	400	G.E.	1200	120/240	440
1	400	Whse.	1200	250	2300
1	400	G.E.	900	275	2300/4150
1	250	G.E.	900	125	2300/4150
1	150	G.E.	1200	250	2300
1	150	Whse.	1200	275	2300
1	150	Cr. Wh.	1200	250	440
1	140	(3U)Cr. Wh.	690	125/250	2300
1	100	G.E.	1170	125	220
1	100	Delco	1200	125/250	440
1	75	G.E.	1200	125	4000
1	75	G.E.	1200	250	440
6	70	G.E.	1200	70	220/440

*25 Cycle

ROTARY CONVERTERS

60 Cycles

Qu.	KW	Make	Speed	D.C. Volts	A.C. Volts
1	2000	G.E.	514	600	13800
1	1000	Whse.	900	600	11000
1	750	Whse.	900	600	13200

TURBO GENERATORS

Qu.	KW	Make	Dese.
1	6000	Al. Ch.	Condensing 200/250 ISP 2300/3/60-Exc. & Surface Cond.
1	2500	G.E.	Auto. Ext. Cond. 800 lbs.-800° F.T.T. 175/200 Auto. Ext. 2300/3/60 Exciter & Surface Cond.
2	1000	G.E.	Non-condensing, 175/200 lbs. I.S.P., 5/30 lbs. G.B.P., 480/3/60.
2	750	G.E.	Condensing 425#-725°TT ISP-440V-3 ph. 60 cy. New — 1944
1	625	Whse.	Non-condensing, 125/150# ISP 5/20# B.P., 440 v., 3 ph., 60 cy., with exciter
2	500	G.E.	Non-condensing 175/200 lbs. I.S.P., 5/30 G.B.P., 480/3/60.
1	400	Whse.	Non-condensing 125/150# ISP 5/10# BTU 40/480v. 3 ph. 60 cy.
1	300	G.E.	Non-condensing 150/175# ISP 5/15# B.P. 480V. 3 ph. 60 cy.
1	300	Al. Ch.	Condensing 425# ISP Geared to 1200 RPM 120/240V. D.C.
1	200	Whse.	Non-condensing 150# ISP 7# B.P. 240 V. 3 ph. 60 cy.

D. C. MOTORS

HP	Make	Type	Volts	Speed
1—1750	West.		600	525/720
1—1500	Whse.		525	600
1— 940	Whse.	QM-R.Brg.	250	140/170
1— 800/1000	Whse.		450	600/720
1— 600	Al. Ch.	MILL	250	400/800
2— 450	Whse.		550	415
1— 300/400	G.E.	DYNA	250	1325/2500
1— 350	Cr. Wh.	CCM-151H	230	1100
1— 335	Whse.	MG	250	300/900
1— 200/300	G.E.	MPC	230	360/920
1— 250	G.E.	MPC	230	400/500
1— 150	G.E.		600	250/750
10— 150	Cr. Wh.	83H	250	890
1— 150	Cr. Wh.	CMC-65H	230	1150
1— 150	Cr. Wh.	CMC-152H	230	300/1050
1— 50/120	G.E.	MCP	230	250/1000
4— 75	G.E.	TLC-50	250	850/2500

FREQUENCY CHANGERS

1—1000	A.C.	25/62½		2300/2300
1—1000	G.E.	25/58	Cycle	4400/2300
1— 500	A.C.	25/60	Cycle	11000/2300V

SYNCHRONOUS CONDENSERS

Qu.	Kva.	Make	Volts	Speed
1	5140	Whse.	4150	600
1	3000	Whse.	4000	720

TRANSFORMERS

60 Cycles

Qu.	KVA	Make	Type	Ph.	Voltages
2	4000	G.E.	HT	3	22000x2300
3	1250	G.E.	H	1	6600x500
1	1050	G.E.	WCTH	3	11000x445
1	1000	G.E.	HT	3	13200x2300/4600
1	500	Whse.	OISC	1	34650x432
2	333	Maloney	OISC	1	13200x240/480
6	300	G.E.	HT	3	13200x240/480
3	300	G.E.	HT	3	6900x240/480
9	300	G.E.	HT	3	2400x240/480
3	150	Maloney	OISC	1	13800x2300/4600
1	100	G.E.	H	1	456x230

RECTIFIERS

1— 750	G.E.	BHW	575	2300
1—1000	A.C.	B-612	625	13500
1—1000*	A.B.B.	GRZ	625	6600/13200

*This unit with full automatic control used for both 25 and 60 cycle.

A. C. MOTORS

3 ph. 60 cycle

SYNCHRONOUS

HP	Make	Type	Volts	Speed
2—3500	G.E.	TS	2300	257
2—2000	Whse.		2300	120
1—1470	Whse.		4600	900
2— 900	Al. Ch.	(New)	2200	150
3— 735	G.E.	ATI	2200/12000	600
1— 650	Whse.	G	2200	138
1— 600	Whse.	Syn.	440	360
1— 450	Whse.	Eng.	2200	128.5
2— 350	G.E.	TS	2200	150
1— 300	Whse.		2300	720
1— 300	Whse.	G	440	800
1— 125	G.E.	ATI	440	450
1— 100	Whse.		550	600

SLIP RING

1—1000	Whse.	CW	2300	414
2— 500	G.E.unused	M-574Y	2300	900
1— 500	G.E.	IP	550	505
1— 500	G.E.	IM-Mill	2200	450
1— 500	G.E.	IM	440	900
1— 350	G.E.	MT-442-Y	2200/4000	253
1— 300	Al. Ch.	3 Brg.	2300	505
1— 300	G.E.	IM	440	720
1— 300	Al. Chal.	ANY	2200	708
1— 250	Al. Chal.	ANY	440	565
1— 250	G.E.	M-567-TEFC	440	600
1— 250	G.E.	MT-424Y	4000	257
1— 250	G.E.	MT-559S	2200	1750
1— 250	Al. Chal.	ANY	550	600
1— 200	Al. Ch.	ANY	440	440
1— 200	G.E.	MTP	440	1170
1— 150	G.E.	IM-15	440	695
1— 150	Al. Chal.	ANY	440	580
4— 125	G.E.	MT-566Y	440/2200	435
4— 100	G.E.	MT-566Y	440/2200	425
1— 100	G.E.	IM-16	2200	435
2— 100	G.E.	IM	440	690
3— 100	Al. Ch.	ANY	440	695
1— 100	G.E.	MT-556	2200	900

SQUIRREL CAGE

2— 650	G.E.	FT5593Y	440	3570
2— 450	Whse.	CS	2300/4150	354
1— 200	G.E.	IK-17	440	580
1— 200	G.E.	KT-557	440	1800
1— 200	G.E.	KT-574Y	2300	595
1— 200	G.E.	IK-17	440	580
1— 150	Wstghse.	CS8568	440	880
1— 125	Whse.	MS	440	485
1— 125	(New) G.E.	KF-TEFC	440	1190
1— 125	G.E.	KF-TEFC	440	3585
3— 125	Al. Ch.	ARW	2200	1750
1— 125	G.E.	IK	220	900
1— 100	G.E.	IK-Vert.	2300	450
2— 100	G.E.	KT-513	220/440	1750
1— 100	G.E.	KT-556	440	900

RE NU BILT BELYEA MOTORS

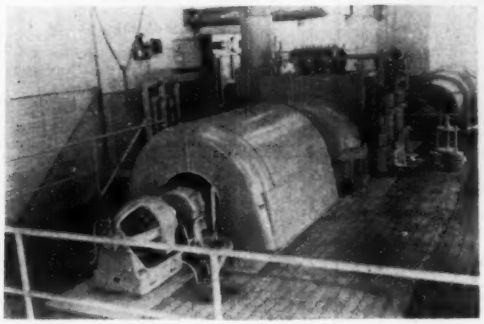
BELYEA COMPANY, Inc.

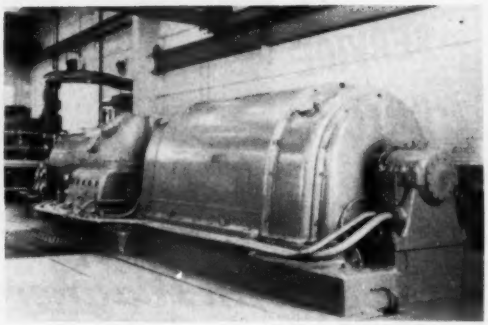
43 HOWELL ST., JERSEY CITY, N. J.
PHONE—JOURNAL SQUARE 2-3334
N. Y. LINE—RECTOR 2-7150

• TURBO GENERATORS •

(1) 2500 KW GENERAL ELECTRIC TURBO-GENERATOR UNIT

(2) 6000 KW ALLIS-CHALMERS TURBO-GENERATOR UNIT





Actual Photo

2500 KW GENERAL ELECTRIC TURBO UNIT

TURBO: 2500 KW, 3600 r.p.m., Form AA, 11 stage, 800 lbs. G. AUTOMATIC EXTRACTION, 2½" abs. condensing.
GENERATOR: 2500 KW, 3600 r.p.m., 3125 KVA, 80% p.f., type ATB-2 form T, 3 phase, 60 cycle, 2300 volt.
EXCITER, 25 KW, 125 volt, 3600 r.p.m. direct connected. Complete operating panel.
CONDENSER: Alberger, surface type, 2 pass, complete with circulating, condensate and air removal pumps.
WATER RATES: Calculated at 800 lbs. I.S.P., 750° F.T.T., and 2½" abs.—KW—Lbs. per KW Hr.

3125 KVA	10.89	1875 KW	11.22
2500 KW	10.89	1250 KW	11.92

Actual Photo

6000 KW ALLIS CHALMERS TURBO UNIT

TURBO: 6000 KW, 3600 r.p.m., 200/225 lbs. I.S.P., 550° F.T.T., 2½" abs., condensing.

GENERATOR: 6000 KW, 3600 r.p.m., 7500 KVA, 80% p.f., 3 phase, 60 cycle, 2300 volt.

EXCITER: 50 KW TURBO UNIT, 125 volt complete operating panel.

CONDENSER: ALLIS-CHALMERS, Surface type, 2 pass, complete with circulating, condensate and air removal pumps.

• RECENTLY ACQUIRED •

Can be Inspected on Original Location

This installation may be purchased in its entirety or in parts, and we will be pleased to supply additional information upon inquiry. The 2500 KW G.E. Electric Unit served as a topping installation for the 6000 KW Turbo Unit; and associated equipment included one

•B&W STIRLING BOILER•

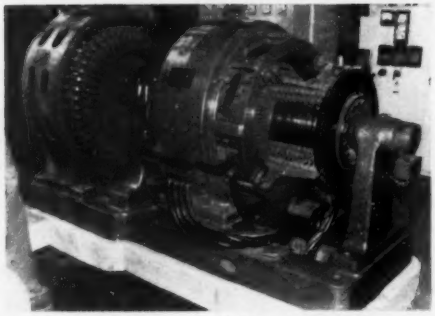
100,000 lbs. per. hr., 800 lbs. pressure, 800° F.T.T. complete with pumps, pulverizers, gauges, valves, and standard trim.

BELYEA COMPANY, INC.

43 HOWELL STREET JERSEY CITY 6, N. J.

WAGNER CERTIFIED REBUILT

FOR
· QUALITY
· SERVICE
· PRICE



500 KW—Whse. Synch. M-G set in stock. Input 3/60/2300 v.—Output DC 250 v.

"Check with Wagner First!"

★ Our complete stock of New and "Certified Rebuilt" Electric Motors and Generators is backed by our 45 years of continuous business experience. Make Wagner your headquarters for the purchase of electric motors and generators and be sure that our long years of service will be most valuable to you in terms of equipment dependability and all around satisfaction.

We are in position, with large stock and ample facilities, to make prompt shipments and at the same time give you that important extra in value for the dollars you spend. A full guarantee goes with every purchase. Save time—save money—save with complete safety!

You are invited to visit us at any time and inspect our shop and stock. All Wagner "Certified Rebuilt" apparatus conforms to standards approved by National Industrial Service Association. We are also one of the few shops including dynamic balancing and dynamometer testing as part of our rebuilding service.

A Few WAGNER Specials --- in Stock

M-G SETS

1—500 KW Whse. DC 250 v
1—300 KW G. E. DC 250 v
1—200 KW Whse. DC 275 v
1—200 KW G. E. DC 125 v
2—100 KW Allis-Ch. DC 60 v
1—100 KW Whse. DC 250 v
2—600 hp G. E. synch. 514 rpm
1—600 hp G. E. slipring 360 rpm
1—500 KVA AC generator 360 rpm
1—500 KW G.E. gen. 25 cycle 750 rpm
1—500 KW G. E. gen. 60 cycle 450 rpm
2—500 hp G. E. slipring 450 rpm
2—500 hp Fair. Morse sq. cage 1200 rpm
1—325 hp G. E. sq. cage 400 rpm
2—300 hp G. E. sq. cage 1800 rpm
1—300 hp G. E. synch. 450 rpm
2—250 hp Whse. sq. cage 1200 rpm
2—250 hp G. E. slipring 600 rpm
1—250 hp AC slipring 514 rpm

QUICK SHIPMENT FROM STOCK — LOW PRICES — FULL GUARANTEE

Send for Complete Stock Lists

CERTIFIED

Arthur Wagner Co.

1435 W. RANDOLPH ST. MO nroe 5-7409 CHICAGO 7, ILLINOIS

MOTOR GENERATORS

1—1000 KW G.E. Syn. 250 V. 720 RPM
3—300 KW G.E. Syn. 250 V. 1200 RPM
1—200 KW ELLIOTT Syn. 125/250 V. 1200
1—100 KW G.E. Syn. 250 V. 900 RPM
1—100 KW G.E. Ind. 250 V. 1200 RPM

ROTARY CONVERTERS

1—500 KW G.E. Syn. 250 V. 1200 RPM HCC, 6 Ph., 60 Cy. Transformers.
1—300 KW G.E. Syn. 250 V. 1200 RPM HCC, 6 Ph., 60 Cy. Transformers.
1—300 KW WEST. Syn. 250 V. 1200 RPM 6 Ph., 60 Cy. Transformers.
1—150 KW WEST. Syn. 250 V. 1200 RPM 6 Ph., 60 Cy. Transformers.

ARMATURES

1—500 KW G.E. 250 V. MPC Gen. 900 RPM
1—300 KW G.E. 600 V. HCC Conv. 1200 RPM

WALLACE E. KIRK COMPANY
502 Grant Bldg., Pittsburgh 19, Pa.

POWER EQUIPMENT

GOOD USED AND UNUSED EQUIPMENT

BOILER FANS—Used less than 9 mts. I.D.-60700 CFM. F.D. 39000 CFM.

5000 GPM Unused F. M. VERTICAL PUMP

1500 KVA Lef.-Allis WATER WHEEL Type Generator-Never Installed.

120 KVA Ames Vert. Uniflow Engine with Westinghouse Generator.

WE CAN HELP YOU. TELL US WHAT YOU NEED

MERRILL and COMPANY
407 S. Dearborn St., Chicago 5, Illinois
Telephone HArrison 7-8289

COMPLETE DIESEL PLANT

3—575 HP F.M. 5 cylinder, 400 RPM. 383 KW F.M. 3/60/2300 alternators. Woodward governors, heat exchangers and complete plant auxiliaries. For sale in whole or part. Condition excellent.

MISSISSIPPI VALLEY EQUIPMENT CO.
507 Locust St. St. Louis 1, Mo.

SELLING FOR CUSTOMERS

2900 KW 2300/3/60 G.E. 450 lb. condensing turbine.
1000 KW 2300/3/60 G.E. 175 lb. operating pressure.
500 KW Westh. 150 lb. non-condensing turbine.
(3) 1200 amps. 600 V. 3-pole Westh. air breakers.
150 HP 720 RPM 220/3/60 G.E. Syn mtr. with Str.
30 & 200 KW M.G. Sets Gen. 250 volt D.C.

H. BLANE JOHNSON & Associates
55 W. Jackson Blvd., Chicago 4, Ill.

---

480 HP BUCKEYE

Diesel Engine, 8 Cylinder, 10½" x 12" stroke, 600 RPM, Model 80, late type. Rebuilt.

ALJON ELECTRIC DIESEL CO.
904 Pacific Street Brooklyn 16, NY
STerling 3-6515

WORLD'S LARGEST INVENTORY

Established 1934

D & B Rated

ELECTRIC EQUIPMENT CO., ROCHESTER, N.Y.—JUNE BULLETIN

ELECTRIC EQUIPMENT CO., ROCHESTER, N. Y. — A JUNE BULLETIN

WRITE FOR NEW 1951 CATALOG AND SPECIAL APPOINTMENT CALENDAR.

TRANSFORMERS

Quan.	KVA	Primary Volts	Secondary Volts	Phase
2	3000	23,000	2300	3
1	1500	2,300	600	3
1	1000	2,300	220	3
6	1000	66,000	7200	1
3	750	2,400	480	1
6	500	2,400	480	1
3	500	12,000	2300	1
3	450	23,000	440	1
3	333	2,400	600	1
3	333	2,400	240/480	1
3	333	13,200	240/480	1
3	333	11,500	240/480	1
3	300	2,400	120/240	1
6	250	2,400	240/480	1

Plus 734 smaller units 1 KVA to 100 KVA

MOTOR GENERATOR SETS AC — DC

Quan.	KW	Make	Volts
1	1000	General Electric	250
6	1000	General Electric	600
1	750	Allis-Chalmers	250
2	500	Westinghouse	250
2	500	Westinghoues	1500
1	500	Westinghouse	125
1	400	Westinghouse	125/250
2	300	General Electric	125/250
1	300	General Electric	500
1	250	General Electric	250
1	200	Westinghouse	250
1	200	General Electric	250
2	200	General Electric	125
1	150	General Electric	250
1	150	General Electric	125
3	100	General Electric	125
4	100	General Electric	250
1	100	Allis-Chalmers	125/250

Plus 238 sets from 1 KW to 75 KW in stock.

DC TO AC

	Input	Output
1	300 HP—230 V.	200 KW, 440/60/3
1	125 HP—230 V	75 KW, 125 V, DC
1	25 HP—230 V	15 KW, 230/60/3
1	25 HP—230 V	15 KVA, 230/60/1
35	20 HP—230 V	12½ KVA, 440 V, 3 ph. .5 P. F.
40	7½ HP—230 V	7½ KVA, 120/60/1
20	6 HP—115 V	5 KW, 120/60/1
5	3 HP—115 V	2 KVA, 110/25/1
10	1½ HP—115 V	1 KVA, 110/60/1
10	1 HP—115 V	½ KVA, 110/60/1

ROTARY CONVERTORS

Quan.	KW	Make	Speed	Volts
5	500	General Electric	1200	250
7	400	Westinghouse	1200	250
1	100	General Electric	1200	250

P.S.—We Stock Explosion-Proof Motors—Class 1-D & 2-G

WANTED

3—200 KVA Transformers, 2400/240/480.
1—1500 KW, 250 volt motor generator set.
1—400 HP, 2300/60/300 rpm slip-ring motor.
1—2000 ampere, three pole air circuit breaker.

AC GENERATORS

ALTERNATORS—CONDENSERS

Quan.	KVA-HP	RPM	CYCLE
1	2500	720	60
1	2500	900	60
1	1675	600	40
2	1500	900	60
1	1430	514	60
1	1250	1200	60
1	1000	750	25
1	800	900	60
3	750	900	60
2	650	139	60
1	500	720	60
1	500	750	25
1	400	450	60
3	400	1800	60
1	350	750	25
1	350	720	60
1	350	225	60
1	333	1800	960
1	320	1200	120
1	300	750	25
1	300	180	60
1	250	720	60

Plus 78 smaller units from 3 KVA to 200 KVA

SLIP RING MOTORS

Quan.	HP	Speed	Make
1	600	1800	G. E.
1	500	1800	G. E.
1	500	514	Al. Ch.
4	500	900	G. E.
1	350	720	G. E.
1	300	450	G. E.
1	300	514	G. E.
1	300	900	G. E.
1	300	720	G. E.
1	200	600	G. E.
1	200	1200	G. E.
2	150	720	G. E.
1	125	1200	Al. Ch.
1	100	900	Wagner
4	100	450	G. E.
3	75	720	West.

Plus 837 smaller units 1 HP to 40 HP

Mr. "Reddy" Cash

Wants Your Surplus List!

Note: We Stock 6000 New Motors, Controls, Frequency Changers

SEND US YOUR INQUIRIES!

DC MOTORS

ADJUSTABLE SPEED—230 VOLT

Quan.	HP	Make	Volts
1	300	General Electric	400/800
1	250	West.	250/675
4	40/250	West.	540/3000
1	150	West.	300/900
1	100	Reliance	500/1500
1	100	G. E.	400/1000
1	100	West.	450/1350
1	100	G. E.	1050/4000
1	90	F. M.	500/1500
1	75	G. E.	400/1200
1	60	G. E.	220/1000
1	60	G. E.	300/1200
1	50	G. E.	250/1000
1	50	G. E.	400/1200
1	40	G. E.	250/1000
1	40	Cr. Wh.	400/1600
1	35	West.	250/1000
1	35	G. E.	500/1000
1	30	Reliance	400/1200
1	30	Cr. Wh.	500/1500
1	25	Reliance	400/1600

Plus 327 smaller units 1 HP to 20 HP

60 CYCLE MOTORS

SQUIRREL CAGE MOTORS

HP	SPEED	MAKE
500	720	G. E.
400	1200	West.
400	514	West.
300	600	West.
250	3600	G. E.
250	1200	G. E.
200	600	Al. Ch.
200	1800	Wagner
150	720	G. E.
150	600	G. E.
150	1200	Al. Ch.
150	1800	Al. Ch.

P.S. We stock 3500 new and rebuilt 1 HP to 100 HP

CONSTANT SPEED 230 VOLT

HP OR KW	MAKE	Speed
400 HP	Elec. Dyn.	1500
300 KW	G. E. (170 V)	1200
300 HP	Cr. Wh.	1200
250 KW	Al. Ch.	720
150 KW	West.	720
125 HP	Star	1200
100 HP	G. E.	900
75 HP	G. E.	1200
75 KW	G. E. 325 V	1200
50 HP	West.	1200
50 HP	Burke	1800

Plus 675 smaller units 1 HP to 40 HP also 115 V & 550 V, DC.

SQUIRREL CAGE AND SLIP RING—25 CYCLE

Quan.	HP	Speed	Make
1	650	365 rpm	S.R.
1	350	750	S.C.
1	300	750	S.C.
1	300	375	S.R.
4	200	500	S.R.
1	200	750	S.C.
1	200	750	S.R.
1	200	500	S.C.
1	200	1500	S.C.

Plus 872 smaller units 1 HP to 150 HP

ELECTRIC EQUIPMENT COMPANY

PHONE LD65

New and Rebuilt **ROCHESTER, N. Y.** *1 H. P. to 2500 H. P.*

MOTORS · MG SETS · TRANSFORMERS · CONTROLS · COMPRESSORS

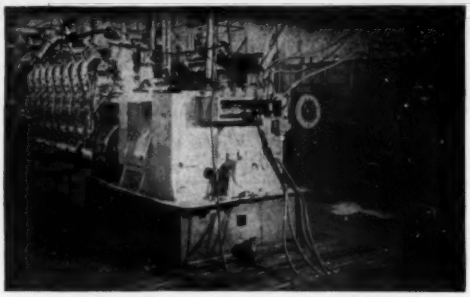
DIESEL POWER

AT 40% TO 60% SAVINGS

EACH ENGINE "REMANUFACTURED" AND "FULL-LOAD TESTED" PRIOR TO SHIPMENT

INSPECTION INVITED

ALL EQUIPMENT OFFERED WITH ONE YEAR GUARANTEE



VIEW OF ENGINE TEST STAND FACILITIES AT OUR PLANT IN SAUSALITO (S.F.) CALIF. ALL ENGINE TESTING CONFORMS TO DIESEL MANUFACTURERS' STANDARD METHODS.

A PARTIAL LIST OF OUR INVENTORY

KVA	MAKE	MODEL	HP	RPM	KVA	MAKE	MODEL	HP	RPM
1875	Fairbanks Morse	33E16	2000	300	312.5	General Motors	8-268A	450	1200
1420	Fairbanks Morse	38D	1600	720	312.5	Clark	GD-4	375	327
1250	General Motors	16-278A	1600	720	300	Fairbanks Morse	YVA	360	257
1000	General Motors	12-278A	1200	720	250	General Motors	8-268A	350	1200
937.5	General Motors	12-567	1080	720	237	Ingersoll-Rand	S	255	600
625	Alco	6-12½x13T	750	600	200	Buckeye	80	240	600
625	General Motors	8-567	720	720	156	Buckeye	E	190	400
425	Baldwin	VO	510	450	125	General Motors	3-268A	150	1200
400	Buckeye	80	480	600	75	General Motors	6-71	90	1200
375	Enterprise	DSG-6	450	450	62.5	Int'l Harvester	UD-18	76	1200
330	Superior	KNA	396	514	50	General Motors	4-71	60	1200

A. G. SCHOONMAKER COMPANY, INC.

52 CHURCH STREET, NEW YORK 7, N. Y.

SHOPS AND WAREHOUSE: JERSEY CITY, N. J. AND SAUSALITO (S.F.) CALIFORNIA

MOTORS - M. G. SETS - COMPRESSORS, ETC.

FAST SHIPMENT

MOTOR GENERATOR SETS
3 Ph. 60 Cy.

KW	MAKE	RPM	D.C. VOLTS	A.C. VOLTS
1250	G.E.	720	275	2200
750	Al.-Ch.	514	250	2300
400	West.	720	550	2300
300	G.E.	1200	275	2300
300	Ridg.	1200	250	2300
300	West.	1200	550	4000/2300
200	Ridg.	900	250	2300
200	West.	1200	275	2300
200	G.E.	1200	275	2300
200	G.E.	1200	250	4000/2300
150	Ridg.	900	250	2300
100	Ridg.	1200	250	2300/440
75	West.	900	75	440/220
35	G.E.	1800	125	440/220

ROTARY CONVERTERS

KW	MAKE	RPM	D.C. VOLTS	A.C. VOLTS
500	G.E. HCC6	1200	250	4000/2300
300	G.E. HC12	600	250	4000/2300
300	West.	1200	250	4000/2300
300	G.E. HCC6	1200	250	4000/2300
150	G.E.	1200	250	4000/2300

AIR COMPRESSORS

356 CFM, Chg. Pn. 12"x10"—NSB 100 lbs.
500 CFM, 100#, Allis Rotary direct connected 100 H.P. B.B. Motors.

A.C. MOTORS—3 Ph. 60 Cy.

HP	MAKE	RPM	TYPE
1200	G.E.	277	MT—S.R.
600	G.E.	600	MT—S.R.
400	G.E.	450	MT—S.R.
300	G.E.	450	IM—Sl.Rg.
200	G.E.	1200	MI—Sl.Rg.
160	G.E.	600	IK-16—Sq. Cg.
150	West.	514	CS954—Sq. Cg.
150	G.E.	600	ATI—Syn.
100 (2)	Allis	720	ARX—Sq. Cg.
100 (4)	West.	1200	CS752C—Sq. Cg.
100 (2)	G.E.	450	IM16—Sl.Rg.
75	G.E.	600	ITC5031A
50	West.	1750	CS
50/12.5	G.E.	900/450	IM 2200 v.

Also Smaller Units in Stock

TRANSFORMERS—1 Ph. 60 Cy.

KVA	MAKE	PRI.	SEC.
1—3000 (3 Ph)	G.E. Auto	25000	22000
3—500	West.	22000	2200
3—200	Al.-Ch.	22000	2200
3—100	G.E.	2400	120/240
3—50	G.E.	2400	120/240
2—25	West.	2400	120/240

Also Smaller Units in Stock

Send us your inquiries for any POWER EQUIPMENT you may require.

MOORHEAD ELECTRICAL MACHINERY COMPANY

361 Noblestown Road Oakdale, Penna. Pittsburgh District

1—100 H.P. New HRT Boiler, 125# W.P.

2—125 H.P. Freeman Scotch Marine, 125# W.P.

3—Ingersoll-Rand UQ 3 Stage pumps, 6"x4" 400 GPM @ 1100' hd. with 250 HP. GE motors 3/60/2200 3450 RPM.

American Ring Roll Crusher with 50 HP Slip Ring Motor 3/60/220

Large Stock Gear Reducers, Steam Pumps, Motors

WE NEED BOILERS AND STEAM ENGINES.

CROWN MACHINERY COMPANY
2323 No. Ninth St. St. Louis 6, Mo.
Central 1313

EXCELLENT POWER UNITS

2—125 KVA Westinghouse AC generators, 440 Volts, 277 RPM. Powered by 2 Bruce Mac Beth gas/gasoline engines.

1—150-HP, 225 RPM, Synchronous motor. Real Bargains.

A A A IRON CO.
Canton & Hawkins Sts., Dallas 1, Texas

INDUCED DRAFT FANS FOR SALE

Two Pratt Daniell Fans, variable speed, Thermix Stacks, 100,000# flue gas 700° F. 2.9" static. Used six months. For further information write

FS-9935, POWER
330 W. 42nd St., New York 18, N. Y.

LAND can help you meet your Production Schedule with

Guaranteed Electrical Equipment

1 YEAR GUARANTEE

3—750 KVA Westinghouse TRANSFORMERS 13800/4160/2400 Volt Primary—460 Volt Secondary

1 to 50 HP
NEW and REBUILT
TEFC—EX. PR.—Drip proof and Splash proof—Geared Head
IN STOCK

SQUIRREL CAGE MOTORS
3 phase

H.P.	Make	Type	Speed
200	G.E.	KT 557	1760
200	G.E.	KF-6335	880
150	West.	CS	580
150	G.E.	IK	870
150	West.	CS	870
125	Century (3)	SCN	1150
100	Century (7)	SCN	1150
100	Wagner (2) (NEW)	XP	1150
100	G.E.	K-544	1175
100	West.	CS	870
100	Al.Ch.		690
75	West. (2)	CS-654C	1750
75	G.E. (3)	K-505	1175
75	Cont. (2)	TEFC	870
75	G.E.	IK	900
75	G.E.	KT-352	865
75	West.	CS	720
60	F-M	TEFC (2)	1750
60	Howell	SCR	1800
60	West. (2)	CS-607	880
60	Rel.	AA	875
60	G.E.	KT-346	865
60	G.E. (2)	TEFC(GH)	427
50	G.E.	FTR-523	3600
50	Elliott	196	3450
50	West.	CS	1740
50	West.	XP	1150
50	G.E.	KF-445	1170
50	West.	CS-642C	1160
50	West. (3)	CS	870
50	G.E. (2)	IK	870
50	G.E.	FTR-542	870
50	West.	CS	690

SLIPRING MOTORS
3 Phase

H.P.	Make	Type	Speed
600	Cr.Wh.	131AQ	507
500	G.E. (2)	IM	450
500	Ideal		1150
225	Wagner	25 cy.	710
200	G.E. (2)	IM	1170
150	Wagner	31VRN	900
150	Burke		720
125	Burke		600
75	West.	CW	720
75	G.E.	MT556	900
75	G.E.	IM	690
60	West.	HF	850
60	Al.Ch.		690
50	G.E.	MT-536	1150
50	West.	CW	1150
50	L.A.	OGH	870
50	F-M	BV	600
50	Al.Ch.	ARY	575
50	G.E.	IM	490

SYNCHRONOUS MOTORS

H.P.	Make	Type	Speed
475	West.		720
300	G.E.	ATI	900
260	G.E.	TS	900
200	West.	Unused	900
180	G.E.	ATI	900
150	G.E.	ATI	900
135	West.	G	1200
100	Elec.Prods.		1200
55	El.Machry.	BRKT	1200

230 V.D.C. MOTORS

H.P.	Make	Type	Speed
200	West.	SK210	575
150	G.E.	L.C.	1750
100	Al.Ch.		1150
90/45	G.E.	RF-17	950/475
75	Sprague		1000/1500
75	G.E.	RC36	800
75	West. (2)	SK-180	475
75	Cr.Wh.	CMC	875/950
75	E-D	25S	450/1350
75	West.	SK151	250/1000
60	West. (3)	SK-160	680
50	G.E.	RC-12	1750
45/90	G.E.	RF-17	475/1950
50	West. (3)	SK-160	565
50	G.E.	RF-17	250/1000
50	West.	SK	250/1000
40	West.	SK-103	1750
40	Century	DN-454	1740
40	G.E.	RC-31	1700
40	G.E.	RC-32	1100
40	G.E.	RC-34	750
40	G.E. (2)	CD-1441	400/1500
40	Cr.Wh.	CCM	700
40	Rel.	461T	400/1200
35	West.	SK	250/1000
35	West.	SK-120	1150
35	G.E.	RLC	440/800
30	West.	SK	975
30	Cont.	D-103	850
30	G.E.	RC-33	775
30	West.	SA	500/1500
30	West. (2)	SK-143	575
25	G.E.	RC-15	1750
25	West.	SK-83	1750
25	G.E.	*CDM-77	1750
25	E.D.	10S	1500
25	Rel.	92T	1150
25	West.	SA	500/1500
25	West. (2)	SK-130	600
25	G.E.	RF-14	300/1200

115 V.D.C. MOTORS

H.P.	Make	Type	Speed
300	West.	SK	900
100	Cr.Wh.	CMC	900
50	G.E.	CD	1150
40	G.E.	CD-113	850
30	West.	S	600
25	G.E. (2)	CD	1800
25	West.	SK-103	1150
25	Cr.Wh.	CCM	750
25	West.	SA	600/1200
15	E.D.	7½S	650/1230
15	Cr.Wh.	CM	650
10	Al.Ch.		900
10	E.D.	7½S	425/1700

550 V.D.C. MOTORS

H.P.	Make	Type	Speed
765	G.E. (3)	MPC	1045/1350

AC GENERATORS

KW	Make	Type	Speed
180	G.E.	ATB	900
100	G.E.	ATB	360
50	F-M	GG	1200
15	G.E.	ASI	1200

AC GENERATORS
Driven by DC Motors

KVA	Make	D.C. Input	A.C. Output
62½	G.E.	230	240
50	Star	115	120
35	G.E.	230	220
31	Ideal	115	440
31	El. Machry.	230	440
18	G.E. (3)	230	120/240
10	Burke	115	120
7½	Hertner	115	440
6¼	G.E.	230	240
5	El. Spec.	115	110
1¼	Al. Ch.	230	110

600 V.D.C. GENERATORS

KW	Make	Speed
400	G.E. (4)	1200
325	G.E.	1200
30	Burke	1750
20	Reliance	1150

GENERATORS
250 V.D.C. Motor Driven

KW	Make	Speed
300	Elliott	1200
250	G.E.	1150
200	G.E.	1200
200	West. Roto-trol	1200
150	West.	900
100	Deleo	1200
100	G.E.	700
75	G.E.	1200
40	Rel.	1750
42	ABC (2)	1200
30	G.E.	1200
25	G.E.	1200

125 V.D.C. Motor Driven

KW	Make	Speed
225	G.E. (2)	1200
150	West. (2)	1200
100	West. (2)	900
100	G.E.	1200
100	El. Machry.	1200
50	West. (2)	1150
30	G.E.	1150
30	L.A.	1450
25	El. Machry.	1150

GENERATORS
Low Voltage D.C.

Amp.	Make	Voltage
125	Hobart (8)	7½
1500	Century	24
2000	G.E.	24V
100	G.E.	30
1000	G.E.	35
150	Watton	40
1000	Chandeysson	40
200	G.E.	42
1500	G.E.	50
1500	Century	60
1500	G.E.	60
1000	G.E.	75

FREQUENCY CHANGERS AND GENERATORS

Size	Make	Output Frequency
150 KW	G.E.	150 cy.
154 KVA	G.E.	150 cy.
15 KW	G.E.	408 cy.
10 KW	G.E.	200/700 cy.
7½ KW	G.E.	408 cy.
3 KW	G.E.	408 cy.

ELECTRIC HOISTS

1000# Y & T—D.C.
1000# Thor—Air.
1000# Y & T—A.C. (2)
1000# Shepard—A.C.
2000# R & M—D.C. (3)
2000# C & M—D.C.
4000# Thor—Air
6000# R & M—A.C.

STARTERS—D.C.

1—600 H.P. 230V. West. magnetic.
150—New 230V. D.C. magnetic starters, from 5 H.P. to 75 H.P. C-H, G.E., etc.
40—New 7½ H.P. 230V. magnetic reversing.
1—300 H.P. West. 115V. magnetic.

TRAVELING CRANES

2 Ton Harnischfeger, 26' 3¼" Span

GUARANTEE YOUR INVESTMENTS!

- LAND gives 1 year guarantee.
- All equipment listed in stock.
- You can see your machines run and tested under power before shipment.
- Complete shop facilities with thoroughly trained & experienced mechanics (many have been with us over 25 years).
- Responsible Organization — 41 years' experience.

Partial List ONLY

EST. 1910 — L. J. LAND INC. — 41st YEAR

156 GRAND STREET — Phone CAnal 6-6976 — NEW YORK 13, N.Y.

220/440 Volt, 60 cycle SQUIRREL CAGE open, 3 Phase

GUARANTEED REBUILT

QN.	HP	MAKE	TYPE	BEARING	SPEED
1	200	G.E.	IK	S.B.	900
1	200	G.E.	IK	S.B.	720
1	150	G.E.	IK	S.B.	900
1	150	G.E.	IK	S.B.	720
1	150	G.E.	IK	S.B.	1800
2	125	Kling		S.B.*	1800
1	100	West.	MS	S.B.	1200
1	100	West.	CS	S.B.	720
2	100	G.E.	IK	S.B.	720
1	100	G.E.	KT-347	S.B.	1200
2	100	G.E.	IK	S.B.	900
1	100	G.E.	IK	S.B.	1800†
3	100	G.E.	IK	S.B.	1800
1	100	West.	CS-504	S.B.	1800
1	75	G.E.	IK	S.B.	900
2	75	G.E.	IK	S.B.	720
2	75	West.	CS-752C	S.B.	900
1	75	G.E.	K-505	S.B.	1200
1	75	G.E.	IK	S.B.	900†
2	75	G.E.	IK	S.B.	900
4	75	West.	CS	S.B.	1200
4	75	G.E.	IK	S.B.	1200
2	75	F.M.	QS-445	S.B.	1800

QN.	HP	MAKE	TYPE	BEARING	SPEED
2	75	G.E.	IK	S.B.	1800
1	60	G.E.	KT-348	S.B.	900
1	60	G.E.	IK	S.B.	1200
1	60	F.M.	QS-444	S.B.	1800
1	60	G.E.	KT-333	S.B.	1800
4	60	G.E.	IK	S.B.	1800
1	50	G.E.	IK	S.B.	900
3	50	West.	CS	S.B.	900
1	50	G.E.	KT-342	S.B.	900
1	50	G.E.	KT-342	S.B.	900†
2	50	West.	CS-445	S.B.	1200
1	50	G.E.	KT-327	S.B.	1800
2	50	G.E.	IK	S.B.	1800†
3	50	G.E.	IK	S.B.	1800
1	40	G.E.	KT-342	S.B.	720
1	40	F.M.	BH12D	S.B.	900
1	40	G.E.	KT-339	S.B.	900
1	40	West.	CS	S.B.	1200
2	40	G.E.	IK	S.B.	1800†
2	40	G.E.	IK	S.B.	1800
1	35	G.E.	IK	S.B.	720
1	35	Triumph	B12	S.B.	900
3	30	G.E.	KT-312	S.B.	1800

QN.	HP	MAKE	TYPE	BEARING	SPEED
3	30	G.E.	IK	S.B.	1800
5	30	West.	K-365	S.B.*	3600
1	25	G.E.	IK	S.B.	720
1	25	F.M.	B12P	S.B.	720
1	25	Century	SC-30	S.B.	1200
1	25	F.M.	BH12A	S.B.	1200
1	25	Ideal	A 18	S.B.	1200
1	25	West.	CS-471	S.B.	1800
1	20	F.M.	KBV	S.B.	1200
1	20	G.E.	KT-322	S.B.	1200
1	20	G.E.	KT-312	S.B.	1200
1	20	G.E.	K-364	S.B.	1800
1	20	West.	CS-384	S.B.	1800
2	20	G.E.	K-328	S.B.	3600
4	20	Line-Weld	Frame 328	S.B.	3600
2	15	West.	CS	S.B.	720
1	15	Wagner	15 T	S.B.	1200
1	15	Ideal	A	S.B.	1200
1	15	G.E.	KT-302	S.B.	1200
1	15	G.E.	KT-752	S.B.	1800
1	10	G.E.	IK	S.B.	1200
1	10	G.E.	KT-752	S.B.	1200

* Splash proof † 2200 volt

SLIP RING MOTORS

We offer from stock the following 220/440 volt, 60 cycle, 3 phase, GUARANTEED REBUILT equipment, unless otherwise noted.

QUAN.	H.P.	MAKE	TYPE	SPEED	DESCRIPTION
1	15	G.E.	MT 512	900	S.B.
1	30	G.E.	MT 332	900	
1	30	Al. Ch.	ANY	900	
2	40	Al. Ch.	ARY 444	1800	splash proof, S.B.
1	40	G.E.	MT 338	900	S.B.
1	50	G.E.	I-M	900	S.B.
2	60	G.E.	MT 568	600	
1	60	G.E.	MT 348	900	
1	60	G.E.	I-M	900	
1	60	West.	CW 505	1200	
1	75	G.E.	I-M	720	
1	100	G.E.	I-M	720	
1	100	G.E.	I-M	900	
1	125	G.E.	I-M	720	
1	150	G.E.	I-M	900	
1	150	G.E.	I-M	1800	2300 volt
1	200	G.E.	I-M	900	

TOTALLY ENCLOSED MOTORS

FAN COOLED, BALL BEARING, 220/440 volt, 60 cycle, 3 phase, GUARANTEED REBUILT, unless otherwise noted.

QUAN.	H.P.	MAKE	TYPE	SPEED	DESCRIPTION
1	7½	G.E.	KF 284	1800	
1	7½	Reliance	AA 224	1200	XP, NEW
5	10	L.A.	JB 328	1200	
1	15	West.	CB 328	1800	XP, NEW
1	25	L.A.	JB 384	1800	
1	40	G.E.	K 486	1800	XP, NEW
1	50	Master	FB 404	3600	XP, NEW
1	50	Al. Ch.	ARZZ 444	1800	NEW
1	75	G.E.	K 586	1200	

POWER EQUIPMENT COMPANY

8 CAIRN STREET — P. O. BOX 534 — ROCHESTER 2, N. Y.

Telephone: Genesee 5629

UTILITY AND INDUSTRIAL POWER EQUIPMENT

POWER PLANTS

7500KW—600 psi 13.2KV—Oil Fired (50 cycles)

8000KW—180# 600°—2400 volt—Coal or Oil Fired

20,000KW—250# 550°—6.6/13.2KV—Oil Fired

TWO—2000KW Turbo Generators—70,000#/HR . . . Boiler—450# 650° Oil Fired

TURBO GENERATORS

25 CYCLE PLANT 25,000KW 200#—1934

CONDENSING — 200 PSI: 3500KW—6600 volt—1928 . . . 3500KW—600 volt 1926 . . . 2500KW—2400 volt—1924 . . . TWO 10,000KW—1920 — 425 PSI: THREE 2000KW—480/2400 volt—1943

EXTRACTION—200# ISP: TWO 750KW—2400 volt—15# Automatic Extraction

NON-CONDENSING—200# ISP 750KW—480 volt—10# BP—Rebuilt & Rewound . . . 300KW—rewind—10# BP—1931 . . . Turbine only—2000KW 40# BP—1936

DIRECT CURRENT: 500KW—250 volts—125/250# ISP—15# BP—1930

DIESEL

1100 KW—480 volt—327 RPM—1941—Complete

UNIFLOW ENGINE GENERATORS

250KW—480 volt—Rewound and Rebuilt . . . TWO 200KW—2400 volt—1927

BOILERS

300,000#/HR—250# 600°—Oil Fired—complete—1934 . . . 35,000#/HR 200#—Stoker—Integral Furnace

TRANSFORMERS

Four—Single Phase—1250KVA 79/138KV—13.8KV Modern

One—Three Phase—750KVA 13.8KV—240/480 Modern

Sixteen—single phase—167KVA 2400—240/480 Modern

CONVERTERS—MG's—FURNACES, Etc.

THREE 1000KVA—600 volt Rotaries—1928 . . . 1000KW—250 volt DC 13,200 AC M G SET COMPLETE—1927 . . . 5000KVA FREQUENCY CHANGERS 60 to 25 cycles

ELECTRIC TILTING FURNACE—6 TON—2000KVA Transformers Complete

PAUL STEWART

320 First Nat'l Bank Bldg. Norwood • Elmhurst 1610 • Cincinnati, Ohio

OPPORTUNITIES!

in

New and used equipment recently released from service by a number of electric and gas utility companies

POWER PLANT EQUIPMENT
CONSTRUCTION EQUIPMENT
SUBSTATION EQUIPMENT
TRANSMISSION LINE MATERIALS

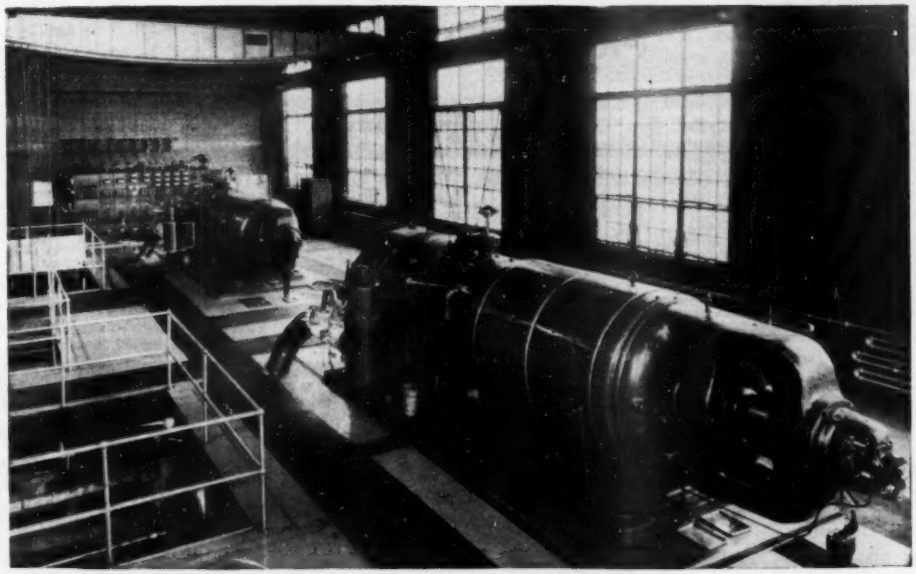
Send for new list . . . to

EBASCO SERVICES INCORPORATED
APPARATUS EXCHANGE
Two Rector St., New York 6, N. Y.

2500 KW. @ .90, 3125-KVA. Two (2) G.E. TURBO-GENERATORS

DUPLICATES: ARE AS GOOD AS THEY LOOK

Send for Free Bulletin #900 — Contains Specifications



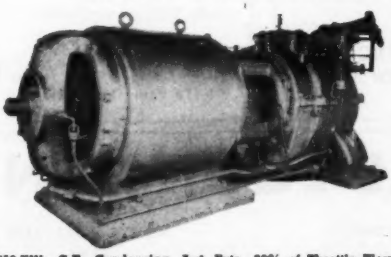
Our 2—3125-KVA., G.E. Condensing Units (Above) are Ready for Immediate Delivery and Installation. Are Complete with all parts including Condensers and Auxiliaries, Surface Type, 8750-sq. ft., capacity. Are Unusually Good Machines. WIRE OR WRITE FOR INSPECTION AGREEMENT.

JUNE SPECIAL

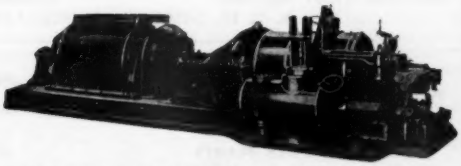
2 BOILERS: B&W., 850# psi., 825°FTT., 100,000# Steam per Hr.
COMBUSTION: 450# psi., 7500 FTT., 70,000 Steam per Hr.
Oil, Gas or Coal Fired. Pass Any Inspection. Investigate Now.

IN OUR STOCK

25 Complete Turbine Sets, 500 to 20,000-KW. Cond. & Non-Cond. Diesels—a Full Line: Boilers, the Same.



A 750-KW., G.E., Condensing, Aut. Extr., 90% of Throttle Flow at 15#, 215# psig., 3/60/2300-v., 937-KVA., 3600-RPM. Condition, Pass any Inspection. Complete Unit Condenser Switchboard, Exciter. INVESTIGATE NOW. Turbine Serial, 28304: Generator, 3868840. Also 2-750, 480-Volt, Same as Above in Stock. Bulletin 975 with Specs. Illustrated Is Free.



Above Allis-Chalmers 1500-KW., .8% pf. Never used since U.S. Govt., spent $8000 rebuilding it, account changed their plans. Steam psig., 150/200#, .8% pf., 1875 KVA., Generator 3/60/2300-v., 3600-RPM. Good for 15 yrs. cont. service with no repairs. PRICED FOR QUICK SALE. Bulletin 500.

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Our 30th Year

HEMPHILL EQUIPMENT PROVES ITS VALUE

Member of The National Industrial Service Association, Inc.

TRANSFORMERS—60 Cycle

Qu.	KVA	MAKE	TYPE	Ph.	VOLTAGES
1	1500	GE	Pyranol	3	4150x2300V
1	1000	GE	Auto	3/2	4150 x 2400
1	500	Kuhl.	OISC	1	4800 x 2300V
3	400	GE	H	1	6900 x 2250V
1	300	Pitts.	ODSC	1	7800 x 440V
1	200	GE	HT	3	2300 x 220
1	200	Whse.	Auto	3/2	4150 x 2300
1	200	Pitts.	OISC	1	4000 x 110/220
1	200	GE	Auto	3/2	4150 x 2400
1	150	GE	HT	3	4150-120/208Y new
1	150	GE	KS	1	2300 x 230
1	100	Pitts.		1	2750 x 110/220
3	100	Wagner	RCKV	1	360 x 120/120
2	100	Whse.	SK	1	4400 x 220/440 Taps
2	100	Newark	Dry	3/2	440 x 220
2	50	Whse.	Intertem	1	2400 x 120/240

MOTOR GENERATOR SETS

3 Phase, 60 Cycle

Qu.	KW	MAKE	SPEED	DC	AC
1	1000	GE	514	600	2300/4150 Sys
1	300	GE	1200	250	2300 Sys.
1	150	GE	1200	125/ 250	2300 Sys.
1	150	Whse.	900	125	4150 Sys.
1	125	CW	1200	125	2300 SC
1	100	CW	1200	125	230/440 SC
1	100	ELMach.	1200	125	4150 Sys.
3	94	GE	1200	60	440 SC
2	75	GE	1200	230	230/440
2	75	GE	1200	125	230/440 SC
6	75	GE	1200	60	230/440 SC
3	40	ELMach.	1750	125	440 SC

SLIP RING

1	2500	GE	MT	6600	257
1	250	Whse.	CW	440	600
1	200	Whse.	CW	440	500
1	100	GE	IM	440	400
1	75	GE	MT	220	300 Vert
1	75	GE	MT	440	1900
1	60	GE	MT	220	1750
1	60	GE	MT	440	900
1	50	GE	MT	220	1750
1	50	GE	MT	220	1300
1	50	Whse.	CW	220	900
1	50	GE	MT	220	1700
1	50	GE	MT	220	600
1	40	GE	MT	220	1200
1	40	GE	MT	2300	1200

SPECIAL—Welding Motor Generator Set

1—76 KVA Whse. Welding Gen. Set, 1 Ph. 220 V, 800 Amp 57% PF with Slip Ring Motor & Exiter

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PHONE NEW JERSEY—UNION 3-2600

FOR IMMEDIATE DELIVERY

SUB-PRIOR SALE

1250 K.W. G. E. TURBOGENERATOR

2300 V. 3 Ph. 60 Cy. WITH EXCITER & SPARES

200 PSIG—100° SUPERHEAT—3" BACK PRESSURE

COMPLETE WITH CONDENSER, CIRCULATING, CONDENSATE PUMPS & AIR EJECTOR.

SPECIALTIES SERVICE & ENGINEERING CO., INC.

SEABOARD TRUST BUILDING — HOBOKEN, NEW JERSEY

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WESTINGHOUSE TYPE HQS PHASE SELECTOR RELAYS

For Selective-Pole Carrier Relaying. *Brand New, Complete.* Original cost $650.00 per set. Only 40 sets in stock. Circular available.

$95.00 each

ELECTRO SALES CO., INC.

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NEW and REBUILT

ELECTRICAL EQUIPMENT

ELECTRIC POWER PLANTS — PLATERS — MOTORS

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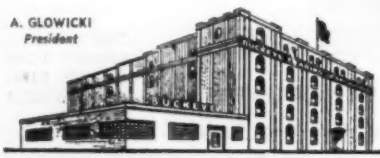
President



BUCKEYE

Trading Corporation

IN STOCK MOTORS FROM ½ HP TO 1500 HP

"OVER 7,000 IN NUMBERS"

1015 to 1021 PAPIN STREET — CHESTNUT 3110 — ST. LOUIS 2, MISSOURI

here's the reason...

...YOU CAN FIND EQUIPMENT YOU NEED—

LARGE STOCKS - ON - HAND

Our modern plant houses one of the nation's largest stocks of motors and equipment. Here you will find row upon row of motors, rebuilt and ready for use to meet your requirements. From this complete stock you can be sure that you fill find what you need and that it is quality equipment fully guaranteed.

GUARANTEED REBUILT POWER EQUIPMENT

HERE'S A PARTIAL LISTING OF OUR HALF-MILLION DOLLAR STOCK

SQUIRREL CAGE MOTORS

3 Phase, 60 Cycle, 220 or 440 Volts (*2200 Volts or higher)

H.P.	Make	Type	Speed
1000	*G. E.	K6327S	1800
750	*G. E.	KT	720
600	*A. C. (New)	AZ	3600
500	*G. E.	PBG	1800
500	*Fr.-Morse	HS	1200
450	*G. E.	KF567S	1200
400	*Cont. (New)	NZ	1800
400	*Al.-Ch.	ARWW	900
300	*Westg.	CS	3600
300	G. E.	IE	1200
300	Al.-Ch.	AR	900
300	Westg.	CS	514
250	Westg. (New)	CS	1800
250	Al.-Ch. (New)	ARW	900
250	L.-Allis	146S	720
250	Westg.	CS	600
150	G. E.	KT	1800
150	G. E.	IE	1800
150	*Al.-Ch. (New)	ARW	1800
150	G. E.	IE	1200
150	Westg.	CS950A	600
125	Westg. (New)	CS504	3600
125	*Al.-Ch.	AR226	1800
125	G. E. TEFC	K6326S	1200
125	Westg.	CS	900
125	G. E. (New)	K6333	900
100	Al.-Ch.(New)	ARWWT	3600
100	*G. E.	FT542Z	1800
100	G. E.	FTRP	1800
100	*Westg.	CS	1800
100	U. S. (Vert.)	CFU	1200
100	Burke	EM	1200
100	Westg.	CS	1200
100	Century (New)	SC585	900
100	G. E. (New)	K6333	720
75	Westg.	CS761	1800
75	Westg. (New)	CS505S	1800
75	G. E.	K505	1200
75	G. E.	KT346	1200
75	*Westg. (Vert.)	CS	900
75	Ideal	AA350	720
75	*G. E.	1K	720
75	G. E.	FT556	720
75	Triumph	TR16	514
60	Westg. (Vert.)	CSW445	1800
60	G. E. (New)	K504U	1200
60	Al.-Ch. (New)	AR8230	900

Hundreds of Smaller Motors:

CHANDEYSSON Anodizer

NEW 1000 Amp. 40 volt, type NPT, d/c 60 H.P. Chan. A-28 Syn. Motor 3/60/220, 600 RPM, 25 deg. cont.

AIR COMPRESSORS

Size	Make	Type	Displ.	Press
10 x 10	Ing. R.	ER1	223	120
10 x 8	Ing. R.	DR1	179	65
9 x 9	Worth.	HB	211	100
9 x 8	Ing. R.	ER1	145	100
8½ x 9	Worth.	HB	170	100
7 x 7	Worth.	HB	122	100

SLIP RING MOTORS

3 Phase, 60 Cycle, 220 or 440 Volts (*2200 Volts or higher)

H.P.	Make	Type	Speed
2000*	G.E.	MT30	240
1200	*Cr. Wh.		240
800	*Al.-Ch.	3 Brg.	450
650	Westg.	HE	350
500	Westg.	CW	350
300	*G. E.	IM	1800
300	G. E.	MT	450
200	G. E.	IM	1800
150	Westg. (New)	CS772C	1200
125	G. E. (New)	M6333	900
125	G. E. (New)	M6334	720
100	G. E.	MT	1800
100	A. C.	ANY	900
100	G. E.	IM	720
100	Wstg.	CW	600
100	G. E.	IM	450
75	Star	OS00	900
60	G. E. (New)	M505	1200
60	Westg.	CW	900
50	G. E.	IM	1800
50	Al. Ch.	ARY	1800
50	Westg.	CW	1200
50	G. E.	MT	720
50	G. E.	IM	420
40	G. E.	MT336	1200
40	Westg.	CW644	900
40	G. E. (New)	M504U	900
40	Al. Ch.	ARY223	720
35	Fr.-Morse (Vert.)	UAB	1800
35	G. E.	IM	1200
30	Westg.	CW	1800
30	Westg.	CW445	900
25	G. E.	IM	1200
25	Al. Ch.	ARY220	900
20	Al. Ch.	ARY216	1200
20	G. E.	MT512	1200
20	G. E.	MT522	900
20	G. E.	IM	720
20	Westg.	CW644	600
15	L. Allis	ON326	1800

D.C. MOTORS

230 Volts

H.P.	Make	Type	Speed
375	Westg.	Ped	650
200	Westg.	SK210	800
175	Reliance	1400T	675
175	G. E.	ELC11	750
100	G. E.	RC34	2500
100	Westg.	SK173	850
100	Al. Ch.	E152	575
40	Cr.-Wh.	CMC	1750
40	G. E.	CO2004	600
35	Cr. Wh.	CM351	700
35	G. E.	C	600
30	Westg.	SK120	975
30	Cr. Wh.	CCM	450
30	Westg.	SK93	1750
30	G. E.	RC31B	1150
25	Westg.	SK100L	1100
25	Westg.	S9	900
25	Al.-Ch.	E-130	700
20	Westg.	SK83	1750
20	G. E.	RC	1150
20	G. E.	LC	575
20	G. E.	RC	800

SLIP RING MOTORS

Crane and Hoist Type 3/60/220 or 440 volt

H.P.	Make	Type	Speed
75	Westg.	C1756A	600
37	G. E.	HITC TENV	600
30	G. E.	ITC5010	1200
25	Westg.	CI572	900
20	Westg.	CI	900
15	G. E.	ITC5010 25 Cy.	720
11	Westg.	CI464	900
6½	R & M	425A TENV	1200
3	G. E.	MR254 TENV	1200

TURBINE SPECIAL

312 KVA Crocker-Wheeler AC Generator 3/60/240/480 volt, d/c to 375 HP Wortngton-Moore Turbine, Single Automatic, Noncondensing, 425 lb. PSI. 10 lb. Exh., 100°F SH with Reduction Gear and Accessories

AC SYNCHRONOUS MOTORS

3 Phase, 60 Cycle, 220 or 440 Volts (*2200 Volts or higher)

*H.P.	Make	Type	P.F.	Spd.
800	G.E.	TS984	1.0	1800
750	*Westg.		.8	900
700	G.E.	TS		514
320	*Al. Ch.	Dr.Pf.	1.0	720
300	Cr.-Wh.	Eng.	1.0	300
250	*Al. Ch.	Dr.Pf.	.8	720
190	El. Machy.	Ped.	1.0	450
150	El. Macy.	EM	.8	720
150	*Westg.		1.0	300
125	El. Machy.	Syn.	1.0	900
125	Cr.-Wh.	103-S	1.0	900
125	*G.E.	TS	1.0	277
115	E.-M.	EM	1.0	240
100	Cr.-Wh.	103-S	.8	900
100	G.E.	ATB	.8	900
100	Ideal	SMS	1.0	900

AC SYNCHRONOUS GENERATORS

3 Phase, 60 Cycle, 220 or 440 Volts (*2200 Volts or higher)

K.W.	Make		P.F.	Spd.
1500	G.E.	ATI	.8	900
1000	*Westg.	SO3D	.8	900
250	*Al.Ch.(new)		.8	720
150	El. Machy.	EM	.8	720
112.5	*G.E.	ATB	.8	1200
110	Cr.-Wh.	103	.8	900
100	G.E.	ATB	.8	900
60	Fr. Morse	B	.8	900
55	G.E.	ATB	.8	1200
50	G.E.	ATB	.8	1200
50	Westg.		.8	1200
50	Cr.-Wh.	50S6	.8	1200
37.5	Al.Ch.	EA121	.8	1800

MOTOR GENERATOR SETS

K.W.	Make	A.C.	D.C.
500	Westg.	2300	250
500	Westg.	550	250
500	Cr.-Wh.	220-440	250
450	G.E. (3 Unit)	2300	125/250
400	Westg.	2300	600
250	Westg.-G.E.	440	250
200	Cr.-Wh.	440	250
200	Ridgeway	2200	250
150	G.E.	2300/440	250
150	G.E.	440	250/275
150	Cr.-Wh.	440	250
150	Al.-Ch.	220	125
100	G.E.	440	250
100	G.E.	220	250
100	G.E. Delco	440	120/240
75	Al.-Ch.	2300	110
75	Westg.	2300	110
60	Al.-Ch.	2300	110
40	Cr.-Wh.	220	125
40	Elec. P.-G.E.	440	250
40	Al.-Ch.	440	250
30	Cr.-Wh.	220	125
25	G.E.	440	250
20	G.E.	440	250
20	G.E.	440	125
10	Cr.-Wh.	220	125

BALANCING SETS

4—34 KW, 250 V., 270 A. Neut. Bogue. Type MCI, 125 V. Gen. BB Comp'd. on Fab. Base, d/c.

2—20 KW. 250 V., 160 A. Neut. Crocker-Wheeler, Type 151, 125 V. Gen. 3 Sl. Bearings, close-coupled.

TRANSFORMERS

4—2500 KVA Westinghouse, 1 Ph., 69,000 V. Primary 13,800 V. Secondary.

1—750 KVA Westinghouse—AIR, 3 ph., 12,800 volts primary, 480 volts secondary.

1—750 KVA Westinghouse—AIR, 3 ph., 13,800 volts primary, 2,300 volts secondary.

3—300 KVA General Electric, 3 ph. 13,800 volts primary 240/480 volts secondary.

3—300 KVA General Electric, 3 ph. 2400 volts primary, 240/480 V. secondary.

3—250 KVA General Electric, 1 ph., 2400/4160 volts primary, 240/480 volts secondary.

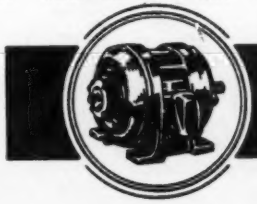
6—167 KVA, General Electric, 1 ph., 2300/4160 volts primary, 240/480 volts secondary.

3—150 KVA General Electric, 1 phase. 33,000 volts primary, 240/480 volts secondary.

HI-PRESSURE PUMPS

GPM	Make	Type	Head
800	Worth.	6DS	925 Ft.
500	Manistee	H	250 Ft.
300	Al.-Ch.	NMZ	800 Ft.

First Source for 41 Years for Quality Electrical Equipment



CHICAGO *Electric Co.*

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MOTORS • GENERATORS • TRANSFORMERS

7x7 AIR COMPRESSOR

Ingersoll Rand 7x7 Class ERI—100#—with or without drive.

1—400 KW Westinghouse 500 V. DC 750 RPM 800 Amps. Motor—580 HP. Synchronous 3 Ph. 25 cycle 440 V. 750 RPM.

ANODIZING M.G. SET

33 KW Gen. Elect. Type BR. Form C 60 V. DC. Direct connected to 50 HP. 3/60/440/1800 Gen. Elect. Motor.

600 HP GEAR REDUCER

1—600 HP Farrel-Birmingham Herringbone Gear Unit. Type SL. Size 30/16 Speed 730 RPM to 115 RPM.

400 HP GEAR REDUCER

1—400 HP Nuttall (Westinghouse) Type LMR-25 Single Helical Heavy Duty Reducer—6-1 Ratio at 900 RPM with High Speed Shaft Extension for Brake.

400 HP SYNCH. MOTOR

1—400 HP Westinghouse Synchronous Motor. 3/60/2300/900 RPM. Unity P.F. with direct connected exciter—Late Type.

MOTORS

60-50-25 Cycle in Stock—All Sizes. Slipring—Squirrel Cage—Synchronous. All types of Control Equipment.

100 HP Westinghouse Slipring 3 Bearing 3/60/220/440/435 RPM.

100 HP Gen. Electric Type I form K 3/60/2300/600 RPM.

100 HP Gen. Electric Type KT 356 3/60/2200/900 RPM.

125 HP Gen. Electric Type I form K 3/60/440/720 RPM.

125 HP Gen. Electric Type KT 3/60/2300/1200 RPM.

150 HP Gen. Electric Type KT 3/60/440/500 RPM.

150 HP Gen. Electric Type I form K 3/60/2300/720 RPM.

150 HP Gen. Electric Type I form K 3/60/2300/900 RPM.

200 HP Gen. Electric Slipring Type I form M 3/60/440/600 RPM.

200 HP Gen. Electric Type KT 3/60/440/600 RPM.

250 HP Gen. Electric Type KT 3/60/440/720 RPM.

350 KW GENERATORS

2—350 KW General Electric Generators Type MPC, 250 Volt DC, 720 RPM Single Bearing Machines.

MOTORS

250 HP Gen. Electric Synchronous Type ATI 3/25 cycle/2200/500 RPM.

350 HP Westinghouse Slipring Type CW, 3/25 cycle/2200/500 RPM.

400 HP Westinghouse, Synchronous 3/60/2300/900 RPM.

DC CIRCUIT BREAKERS

1—1000 AMP. Condit. 2 Pole

1—1600 AMP. Condit. 2 Pole

1—1600 AMP. Westinghouse 2 Pole

1—3000 AMP. Westinghouse 2 Pole

125 VOLT DC MOTORS

1—100 HP Crocker Wheeler 125 Volt DC 850 RPM Ball Bearing

1—150 HP Crocker Wheeler 125 Volt DC 850 RPM Ball Bearing.

Will make 1200 RPM 125 Volt Generators.

REBUILT TRANSFORMERS

3—100 KVA G.E. 1 ph., 60 cy., 2400/4160 pri., 120/240 sec.

3—1667 KVA Wagner 1 ph., 25 cy., 23,000 pri., 575 sec.

ERIE ELECTRIC CO., INC. 124 CHURCH ST. BUFFALO, N. Y. CL. 4758

A. C. POWER

3—150 K.W. DIESEL GENERATOR SETS

Buckeye—600 r.p.m.—medium speed Westinghouse generator — 440/3/60 — complete with modern dead front switch gear. Units equal to new—used only 50 hours.

IMMEDIATE DELIVERY

Write—Wire—Phone

THE

BOSTON METALS CO.

313 E. Baltimore Street

Baltimore, Md.

LE 1900 CU 5050

NEW TRANSFORMER FOR SALE

1,000 KVA General Electric form VDM, serial No. 8109789, type H, Primary volts 11550, secondary volts 2300, shipping weight approximately 11,350 pounds, single phase transformer.

SAM SCHWARTZ MACH. CORP.

P.O. BOX 1461

CHARLOTTE, N.C.

STEAM GENERATORS
60 Cycle Power

2—Bellias & Morcom vertical compound steam engines of 430 BHP each, at 160 P.S.I. direct coupled to

2—Swedish General Electric 375 KVA 600 volts 60 cycle 3 phase 360 RPM generators complete with operating panels with necessary meters and synchroscope

MOTOR GENERATOR SET
25 to 60 Cycle

complete with Control Panel, Meters and Oil Circuit Breakers with

GENERAL ELECTRIC DIRECT CURRENT GENERATOR

20 K.W. 70 Amps. 115 V. Speed 750 R.P.M. Shunt Class 6-20-750 Form B Type CI. 25 No. S.2296

SYNCHRONOUS MOTOR

No. 413938 P.F.I.
Type AT I Class 4-560-750
Form C H.P. 710 Speed 750
Volts 2300 Amps. 140 Cycles 25
Pat'd. Aug. 13-95. Aug. 29-99. Nov. 20-00. Dec. 2-02.
General Electric Co., Schenectady, N.Y. U.S.A.

GENERAL ELECTRIC SYNCHRONOUS MOTOR

No. S.2312 Class 10-500-750 Type A.T.B.
Volts 550 Phase 3 Amps. 525
R.P.M. 750 Cycles 62.5

MONARCH KNITTING CO., LTD.

Joseph Simpson Division

8 Berkeley St. Toronto 2, Canada

TRANSFORMERS

SINGLE PHASE — 60 CYCLES (Unless otherwise stated)

Qty.	Kva	Make	Type & Form	Prim. Volts	Sec. Volts
3	1250	GE	H—VDDJ	13800	575/600
3	333	PITTS.	ODSC	33000	2300
1	250	GE (3 PH.)	HT—B	460	216Y/125
3	250	PITTS.		2400/4800	600
3	200	GE	H—KDD	2400	120/240
6	200	PITTS.	ODSC	2300	575
2	200	WEST.	5	2400/4160	600
3	200	MOLONEY		600	220/110
2	200	GE	H—KSTQ	4156	240/120
4	100	PITTS.		2100	110/220
2	100	WAGNER	HE	3980	115/230
3	75	GE	H—K	2200	244/488
2	50	WEST.	SK	22000	2300

MANY OTHERS IN STOCK — WRITE FOR OUR LIST #1135

EMPIRE ELECTRIC COMPANY, INC.

87 JAY STREET MAin 4-5900 BROOKLYN 1, N. Y.

MOTORS — M. G. SETS — TRANSFORMERS

ENGINEERED AND REBUILT BY SPECIALISTS IN OUR MODERN PLANT

SQUIRREL CAGE MOTORS

3 Phase — 60 Cycle

QU.	HP	MAKE	TYPE	VOLTS	R.P.M.
1	400	G.E.	IK	2200	514
1	400	G.E.	KT-412	2200	435
2	300	Whse.	CS-890	2300	1780
1	250	Whse.	CS	2200	1160
1	200	Whse.	CS-873C	2200	1160
1	200	Al-Ch.	AR	440/220	580
2	125	Al-Ch.	AR	2200	1750
1	125	Whse.	CS-761C	440/220	1750
1	125	C.W.	126-Q	440/220	430
2	100	Whse.	CS-663C	440/220	1750
1	100	G.E.	IK	440/220	1800
1	100	Al-Ch.	AR	2200	1160
1	100	Al-Ch.	AR	550	690
1	100	F.M.	H241B	440/220	435
1	100	Whse.	CS-938	2200	495
1	78	G.E.	I-K15	440/220	570
1	75	Al-Ch.	AR	2200	1765
1	75	Al-Ch.	AR	2200	1750
1	75	Al-Ch.	AR	2200	690
1	50	G.E.	KT	440/220	1160

SLIP RING MOTORS—Constant Duty

3 Phase — 60 Cycle

QU.	HP	MAKE	TYPE	VOLTS	R.P.M.
1**	3000	G.E.	MT	2200	356
1**	1200	C.W.	SR	2200	237
2**	1000	Al-Ch.	ANY	2200	235
1**	600	G.E.	MT-20	2200	360
1	500	Whse.	C.W.	4600/2300	514
1	500	Al-Ch.	ANY	4000/2300	514
1**	400	G.E.	IM	2300	590
1**	400	Al-Ch.	ANY	2200	514
2	500	G.E.	I-16-M	2300	450
2	400	G.E.	MT-412	2200	450
1	300	G.E.	I-15-M	2200	1200
1	300	Al-Ch.	ANY	2200	514
1	250	G.E.	MT-414	2200	300
1	200	G.E.	I-16-M	2200	585
1	150	G.E.	I-13-M	2200	1750
1***	125	Whse.	CW-870	2200	870
1	100	F.M.	H20C	440/220	900
1	75	G.E.	IM	440/220	695
1	75	Whse.	CW-7540	440/220	690
1	60	Whse.	CW	440/220	900
1	50	G.E.	MT-536	2200	1150
2	50	Al-Ch.	ARY	440/220	900
1	50	F.M.	SR	440/200	600
1	40	Al-Ch.	ANY	2200/440	435

—Mill type pedestal bearing *—3-bearing

SYNCHRONOUS MOTORS

3 Phase — 60 Cycle

QU.	H.P.	MAKE	P.F.	VOLTS	R.P.M.
1	3000	Whse.	80	4800/2400	720
1	700	G.E.	80	2300	720
1	600	Whse.	80	2400	720
1	400	Whse.	80	440	600
1	300	Whse.	80	440	514
1	268	Al. Ch.	100	2200	900
1	150	G.E.	100	2200	900
1	150	G.E.	100	550/2200	600
1	150	G.E.	80	550/2200	450
3	125	El. Mchy.	100	4800/2400	900
1	125	G.E.	80	2200	900
2	100	Whse.	80	440/220	1800
1	100	Whse.	100	2200	1200
1	100	Ideal	80	220/440	900
2	100	G.E.	80	220/440	600
1	60	G.E.	80	220/440	1200
2	50	G.E.	80	2200	600

MOTOR GENERATOR SETS

QU.	K.W.	MAKE	R.P.M.	VOLTS	VOLTS A.C.
1	2400 (34)	Al. Ch.	720	525	4800/2400
1	2400 (34)	Whse.	720	600	4800/2400
1	1500	Whse.	514	250	4600/2300
2	1000	G.E.	514	575	4000/2300
1	500 (34)	Whse.	1200	120/240	2300/440
2	500	C.W.	720	575	4000/2300
1	500	C.W.	720	250/275	4000/2300
1	500	C.W.	720	250/275	2300/440
1	350	G.E.	720	250	2300/440
1	200	Ridgway	900	250	2300
1	155	G.E.	720	250	2300/440
1	150	Al. Ch.	1200	250	2300/440
1	150	G.E.	1200	500	2300/440
1	100	Ridgway	1200	275	4000/2300
1	85	C.W.	1200	250	2300/440
1	75	Star	1200	230	440/220
1	75	Al. Ch.	900	250	2300
1	50	Burke	1800	240	440/220
1	30	Reliance	1800	250	440/220
1	25	Whse.	1200	120/240	440/220
1	20	Reliance	1800	250	440/220

34—3-Unit Set

DIRECT CURRENT MOTORS

QU.	HP	MAKE	TYPE	R.P.M.
1***	3000	Whse.	Encl. (Rev.)	600
1***	2400	Whse.	Encl. (Rev.)	600
4***	1500	Whse.	Encl. (Rev.)	600
4***	1200	Whse.	Encl. (Rev.)	600
4***	800	Whse.	Encl. (Rev.)	600
1	350	G.E.	CD-169	1150
1	325	Whse.	QM-660.6	450/900
1	200/250	El. Dy.	#22	400/1200
1***	200	G.E.	MPC	500/1200
1	200	Whse.	Mill	300/1200
1	300	Whse.		240/300
1	180	G.E.	MPC	400
2*	150	C.W.	83-H	890
1***	125	Whse.	SK-190	600
1	100/125	Rel.	1995-F	300/1200
2	100	Rel.	1050-T	400/1200
1	90/160	G.E.	MPC	625/1125
1*	50/75	Rel.	1995-F	300/1200
1	35	G.E.	RF-14	500/1500
1	35	G.E.	CD-125	400/1200
1	35	G.E.	CD-147	300/1200
1	35	Rel.	35P	250/1000
1	32½	Whse.	SK-150	400/1200
1*	30/75	Whse.	SK-151L	400/1200
1	30	Al-Ch.	E-145	400/1200
1	30	G.E.	CDM-105	875/1750
2	27½	El. Dy.	15S	450/1350
1	25	G.E.	RF-13	400/1600
1	25	G.E.	CD-123	400/1200
1	25	Whse.	SK-140	400/1200
1	25	Whse.	SK-111L	250/1000
2	20	Al-Ch.	E-130	400/1200
3	20	G.E.	CD-123	300/1200

All above 230-VDC except where marked ***.
***—Pedestal bearing mill design 525/600-VDC.
Rev.—designed for mill reversing service.
*—T.E.F.C.

TRANSFORMERS (Power)

QU.	K.V.A.	Make	TYPE	PHASE	Voltage
1	7500	G.E.	H	3	33000/29700-13800/12600
1	4500	G.E.	HT	3	27000/24300-2300
3	1500 (New)	Gregory	(X)	3	4160-480
2	750 (New)	Gregory	(X)	3	4160-480
3	250	Packard	OISC	1	13200-2200
3	100	Whse.	SS	1	12075/10955-230/460
3	100 (New)	G.E.	HS	1	14400/12870-240/480
3	50	Al. Ch.	OISC	1	22000-220
2	50	Wagner	HE	1	13200/11880-575/287

(X) New self contained indoor type, air cooled.

T. B. MAC CABE COMPANY

4314 CLARISSA STREET — Phone DAvenport 4-8300 — PHILADELPHIA 40, PENNA.

BUY "BERGERIZED" MOTORS

IMMEDIATE DELIVERY — **LOW PRICES** — **ONE YEAR GUARANTEE**

SQUIRREL CAGE

1—250 HP Wagner — S.B. — Type RP1 — Frame 31V—1800—3-60-440 V.

2—250 HP Westinghouse — Type CS — Sealed S.B.—Frame 8755—1800—3-60-2200 V.

20—200 HP Wagner—Type RP2—Frame 26—S.B.—Model 1E1-BZ-69-B—1800—3-60-440 V.

1—150 HP Westinghouse — Type CS — Sealed S.B.—Frame 771.1C—1800—3-60-440 V.

1—150 HP G.E.—Type IK—S.B.—Frame 16—600—3-60-220 V.

1—150 HP A.C.—Type AR—B.B.—3600—3-60-2300 V.

1—125 HP G.E.—Type KF—B.B.S.P.—Frame 559C—3600—3-60-2300 V.

3—125 HP F. Morse—1800—Type H—B.B.—1800—3-60-220/440 V.

2—125 HP Wagner—S.B.—Type 26VSBM—1200—3-60-2300 V.

2—125 HP Wagner — 450 — S.B. — Type 38T5BM—3-60-2300 V.

2—100 HP A.C.—Type ARW—S.B.—1800—3-60-4160/2300 V.

1—100 HP Crocker W.—S.B.—Type SC—1800—3-60-220/440 V.

1—75 HP A.C.—B.B.—Type AR—3600—3-60-2200 V.

3—75 HP G.E.—Type KT—S.B. Frame 543—1200—3-60-220/440 V.

2—75 HP G.E.—S.B. Drip—900—3-60-2300 V.

9—60 HP G.E.—West.—Wagner—Frame 445—1800—3-60-220/440 V.

2—60 HP A.C.—Type AR—Frame 220AS—1800—3-60-440 V.

3—60 HP Wagner—S.B.—Type 38T5BM—Frame 22TVP—1200—3-60-220/440 V.

2—50 HP A.C.—Type AR—S.B.—1200—3-60-440 V.

4—50 HP G.E.—Type KT—S.B.—Frame 346—3-60-550 V.

GEARHEADS

10—2 HP Westinghouse—TEBB—Type CS—Frame 225—166 RPM—3-60-220/440 V. Par. Shaft

15—3 HP G.E.—B.B.—Par. Shaft—Type MJ—Frame 254—103 RPM—3-60-220/440 V.

MOTOR GENERATOR SETS

10—20 KW G.E. Motor Generator Sets—250 V.—DC—Type CDM—B.B.—1800—with 30 HP G.E. Frame 365—Type KF-19—1800—3-60-220/440 V.

WRITE • CALL • WIRE

• *We have one of the largest inventories of* MOTOR and CONTROL *in the Industry.*

J.E. BERGER *Corporation*

4550 MAYBURY GRAND AVE. • DETROIT 8, MICH.

PHONE • TYler 8-4400

TURBO-GENERATORS

250 KW, 300 KW A.C. and D.C.

2000 KW 3 phase, 50 cycles, 6300 volts

Immediate delivery

Packed in original crates

Complete Specifications and Details Upon Request

INTERNATIONAL FERMONT MACHINERY CO., INC.
115 BROADWAY
NEW YORK 6, N. Y.

FOR SALE

2—Late 2000 KW GE Turbo Generators
1—1000 KW GE Turbo Generator—Cond.
2—4000 HP Synchronous Motors—257 RPM
1—Rotary Compressor 60000 CF/H @ 4#
1—IR Compressor 20,000 CF/H at 100#
1—10" Centrifugal Pump 2000 GPM at 50' hd.
1—Deaerating F.W. Heater 10,000#/hr.

UTILITY EQUIPMENT & CONSTRUCTION CO.
316 So. LaSalle St. Chicago, Ill.

FOR SALE

MODERN 1000 KW Turbo-Generator

In Excellent Condition

Non-Condensing, Steel case 80# back pressure .8 P.F., 3 phase, 60 cycle, 4150/2300 volts, alternating current, complete with accessories, switchboard, oil circuit breaker, and direct connected exciter. Only operated alternately for six years. Ideal for Chemical, Rubber, Petroleum, Textile, Pulp and Paper, and Sugar Refining Industries.

NEWMAN & COMPANY, INC.
6101 Tacony St. Philadelphia 24, Pa.

3-667 K.V.A.

General Electric

TRANSFORMERS

1 Phase 60 cycle Type H. Form K.D.

13.2 K.V. Primary with Four 2.5% Tax, 2300/4000 Y Secondary

FITZPATRIC & WALSH
2449 N. 9th ST., PHILA. 33, PA.
ST 2-4503

TEMPERATURE RECORDERS

27—Used Leeds and Northrup Indicating and Recording Micromax Recorders Model "S" Automatic motor driver self-contained flush mounting.

DALTON SUPPLY CO.
2829 Cedar St. Phila. 34, Pa. GArfield 8-1800

TRANSFORMERS

13,200/2,300 60 cy. 1 PH.
3—150 KVA, GE.
3—200 KVA, GE.
3—250 KVA, GE.

ANDREN-MYERSON CORP.
411 Atlantic Ave. Boston 10, Mass.
Tel. Liberty 2-4300

BOILERS

1 Erie 400 HP Str. tube 200 lbs. sprdr. stoker
1 Murray Type A 200 lbs.
1 Leffel 40 HP Scotch 100 lbs.

F. W. HAY AND CO.
2734 Cherry St., Kansas City 8, Mo.

MOTORS

2—1000 HP 300 RPM Syn. 3-60-2300 V—8 P.F.

IN STOCK — REBUILT
Motors, Control, Drives—All Types, Compressors, Pumps, Conveyors.

ENSLOW MACHINERY CO.
1401-8th Ave. Huntington, W. Va.

"Opportunity" Advertising:
Think
"SEARCHLIGHT"
First

POWER EQUIPMENT—READY TO SHIP

A.C. MOTORS

220/440 volt 3 ph. 60 cy.

Qua.	HP	Make	RPM	Type
1 vert.	250	G.E.	1175	I-2200 v.
1	250	G.E.	1175	I-E 18A (2200 v.)
1	250	G.E.	1175	I
4	250	West.	1775	CS-875s (2200 v.)
1	200	West.	730	CS-954A
1	200	G.E.	850	2200 v.
5	200	Wagner	1750	RP-3
1	175	West.	600	CS
1	175	West.	1200	MS
1	200	G.E.	1800	Syn. (2200 v.)
1	150	West.	257	Syn.
1	150	G.E.	720	I-E
4	150	West.	1150	CS-875s
1	150	West.	1200	MS
1	150	West.	500	CS-954A
1	125	Elec. Mach.	154	Syn.
1	125	West.	450	CS
1	125	West.	600	Syn.
3 New	125	West.	1200	Syn.
1	100	Fair. Morse	360	Syn.
1	75	Stanley	600	
1	75	Elec. Mach.	900	Syn.
1	75	Allis. Chal.	1750	
1	60	G.E.	1800	KT-533
1	60	Triumph	1200	B-133
1	50	Triumph	860	B-133
1	50	G.E.	720	KT-546
1	50	Crocker Whl.	900	
3	50	West.	900	CS
3	50	West.	1200	KS
			1750	k-504 U (2200 v.)
5 New	50	G.E.	1750	AA-504s
3 New	50	Reliance	1750	AA-504s
1	40	G.E.	570	KT-546
3	40	West.	720	CS
1	40	Allis Chal.	1750	
			1630	Hi-torque —hi-slip
1	40	G.E.		
1	40	Allis Chal.	1750	
1	40	G.E.	3600	FT-513Y
			750	KR-444 TEBB
1	30	G.E.		
2	30	G.E.	3600	KT-305
1	25	Commonwlth.	560	splash prf.
1	25	G.E.	810	KR-405 hi. torque —hi-slip
2	25/7.5	Continental	1150/575	2 speed
1	25/6.2	Continental	1150/575	2 speed
1	25	Howell	1200	SC
1	25	Reliance	1200	LJ
1	25	G.E.	1200	KF-405
1	25	West.	1150	CS-405
1	20	G.E.	680	KT-533s
1	20/7½	G.E.	1165/425	K-504
2	20	Allis Chal.	860	
1	20	Louis Allis	870	Exp. Pf.
1	20	Allis Chal.	1120	hi-torq.
4	20	Cr. Wh.	1150	SC

SLIP RING MOTORS

3 ph.—60 cy.

HP	Make	RPM	Type	Volts
400	Westg.	428	HP	2200
300	Allis Chal.	585		2200
200	Westg.	500	CW	220/440
100	Triumph	580	C-17	550/220/440
75	G.E.	450	M-6338	220/440
60	Westg.	1160	CW-644C	220/440
60	G.E.	570	MTC-5346	220/440

SPECIAL BARGAINS
Diesel Engine Generator Sets

10—100 kw., 129/240 v. D.C. Delco Generators dir. con. to 150 HP Model GBD-8, 5½x7, 8 cyl. Superior DIESEL Engines, elec. start with engine panels

4—100 KW same as above with 220 or 440 v. NEW A.C. Generators

1—60 kva. Fairbanks Morse 229/440 v. 3 ph. 60 cy. 300 rpm DIESEL

4—25 kva. 120 v. 1 ph. 60 cy. Westinghouse dir. con. to 58 HP., 4 cyl. 900 rpm., LaNoi Gasoline Engines with control panels.

5—25 kw., 229/440 v. 3 ph. 60 cy. Westinghouse direct connected to 4 cyl. LaNoi Gasoline valve in head liquid cooled Engine complete with control panels

3—2½ kw. NEW 115 v. 1 ph. 60 cy. Leland belt driven by Briggs & Stratton air cooled gasoline engines complete with fuel tank and muffler all mounted on steel skids.

NEW EXPLOSION PROOF MOTORS

2—3 HP., 1750/3500 rpm 230 V D.C. Reliance.
3—7½ HP., 1750/3150 rpm 230 V. D.C. Reliance.

NEW SINGLE PHASE MOTORS

110/220 v, 60 cy.

15—¾ HP G. E. 1145 rpm type KCJ-204, drip proof.
8—1½ HP Westg. 1725 rpm B.B. Type CAF-204.
8—2 HP Westg. 1140 rpm type CU-254.

CRANES

1 ton Euclid Overhead 29'9½" span, 8' lift, 220/440 v. 3 ph. 60 cy.
1 ton Euclid Overhead 29'10½" span, 8' lift, 220/440 v. 3 ph. 60 cy.

GEARHEAD MOTOR

1—NEW 10 Hp., Westinghouse 220 v. 3 ph. 60 cy. 1500 rpm., to 20 rpm type FD-3267, frame W258 type CS

STEARNS BRAKES

6—Size 1306-C Stearns Magnetic Disc Brakes 220 or 440 volt 345' lbs.
1—525.9 ft. torque General Electric 230 v. D.C. Magnet Brake, sh. wd. CR-9523 100 to 125 HP
1—600 lbs. per ft. series brake, drum made for tapered shaft, type M, size 18, torque, 1125 rpm., 220 v. line volts, drum 18" dia. 6¾" face, Cutler Hammer Magnetic clutch.

MOTOR GENERATOR SETS—
250 V. D.C.
Motors 220/440 volt or 2200 volt

No.	KW	Make	Rpm
2	200	Westinghouse	1200
1	100	Westinghouse	700
1	100	General Electric	900
1	100	Westinghouse	600
1	100	General Electric	1800
1	100	Reliance	580
1	100	Delco	1200

TRANSFORMERS
1 ph. 60 cy.

No.	Kva	Make	Primary	Sec.
3	500	West.	22000	2200
3	200	Pgh.	22000	2200
3	200	Pgh.	4600	120/240
5	200	Allis Chal.	4800	120/240
2	150	Pgh.	4600	115/230
1	110	Pgh.	4600	115/230
6	100	Pgh.	4600	115/230
2	100	Allis Chal.	4800	120/240
2	100	G.E.	4800	120/240
1	75	Pgh.	4600	118/230

ENGINES

NEW 75 HP P.&H. Model 387C 3 cyl. Diesel
Rebuilt 32 HP. Caterpillar Model D-3400 Diesel
NEW 43 HP. International Model U-6 4 cyl.

NEW AXIAL FLOW VENTILATING FANS

20—6000 cfm Sturtevant Bulletin 512389 3" stat. pres. 7 blade dir. con. 5/1.5 HP 1765/1175 rpm 220/440 v. 3 ph. 60 cy. Westg. TEFC Motors
5—5000 cfm 3.2" stat. pres. Sturtevant with 2 speed 220/440 v. 3 ph. 60 cy. Motors
2—10,000 cfm LADEL dir. con. 2 speed 220/440 v. 3 ph. 60 cy. Motors
1—12000 cfm 5" stat. pres. with 2 speed 220/440 v. 3 phase 60 cy. Motors
2—16000 cfm 5" stat. pres. Buffalo Forge with 2 speed 220/440 v. 3 ph. 60 cy. Motors

AUTO TRANSFORMER

3000 kva. output 22000 Y to 2300 v. 3 ph. General Elec.

BAKER LOCOMOTIVE CRANE TRUCK

Model CYA 3000 lbs. at 7' radius with 8 to 12' adjustable telescoping boom complete with slow control, hoist control and boom control.

SPECIAL BARGAIN
550 V. M.G. Sets

2—500 kw. Crocker Wheeler 575/600 v. 720 rpm., dir. con. 4160 or 2300 v. 3 ph. 60 cy. Syn. Motors with swbds.

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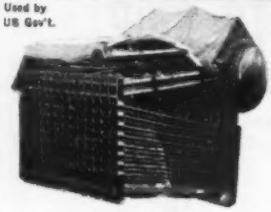

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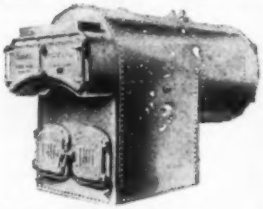

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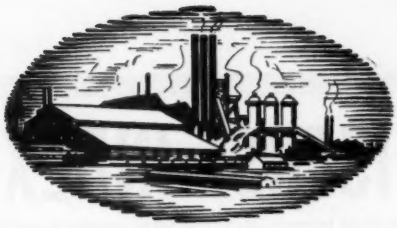

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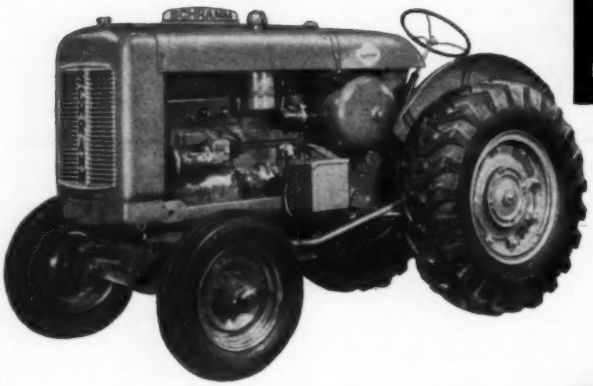

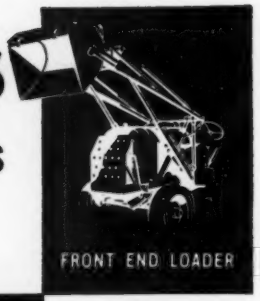

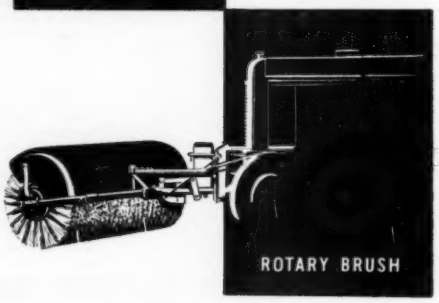

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The bending operation illustrated above is an example of Grinnell QUALITY CONTROL *in action* . . .

The tubing shown is made from a chromium alloy steel forging, turned and bored. Outside diameter is 14¾ inches; wall thickness 2⅜ inches. Temperatures of the tubing within the bending furnace were maintained and controlled within 20°F of specified temperatures. Bending was done with such skill and rapidity as to permit a temperature drop of only 100°F at the inside surface of the tubing. Maximum thinning was only .06 inch.

Designed for a central station power plant to accommodate 1500 PSI and 1050°F, this is typical of Grinnell's engineering knowledge which assures prefabricated piping of the right kind — for all types of installations no matter how complex.

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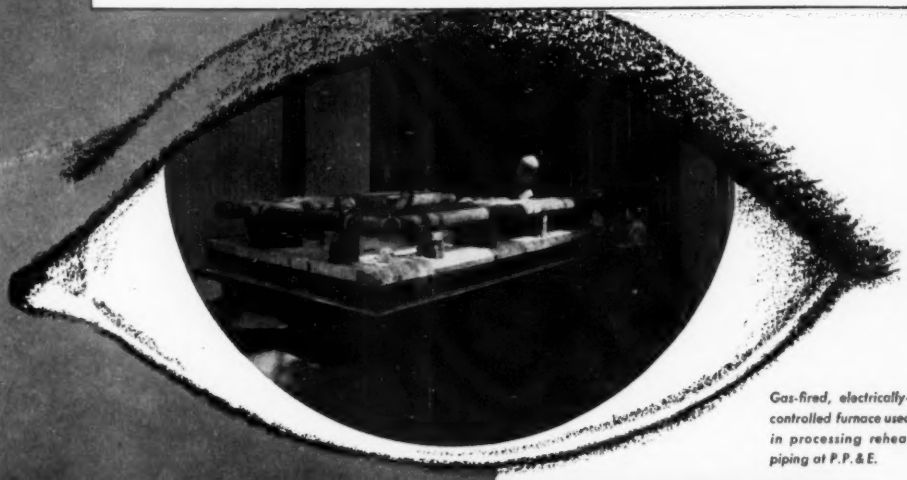
Looking at REHEAT



Gas-fired, electrically-controlled furnace used in processing reheat piping at P.P.&E.

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Proper piping is essential in order to realize the benefits inherent in reheating steam to higher temperatures—increased volume per pound of water evaporated . . . reduced condensation in lines, casings, cylinders, etc. . . . improved BTU output . . . better fuel economy.

Remember when 750° F. was thought to be a high reheat temperature? Even then P.P.&E. was ahead of the needs in piping that would carry the load. As the trend toward higher temperatures continued, P.P.&E.'s experience accumulated.

That's why the conditions encountered in present-day reheat temperatures over 1000° F. are thoroughly understood by P. P. & E. engineers—and why adequate materials, design know-how, methods of treating and fabricating, and testing procedures are available.

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